WORKERS' COMPENSATION BOARD OF NOVA SCOTIA

Discussion Document

Funding Strategy 2003

FINANCIAL PROJECTIONS

2003 – 2007

Prepared by the Financial Services Department for consideration by the Audit and Finance Committee on June 12,2002 and the Board of Directors on June 18, 2002.

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Workers' Compensation Board
of Nova Scotia
Financial Projections

Summary

The funding strategy outlines the WCB's proposed approach to funding current operations and the eventual elimination of the unfunded liability. In preparing the 2003 – 2007 financial projections for the Workers' Compensation Board of Nova Scotia, a number of factors were considered, including the wage loss costing work that was done in preparation for the introduction of the *Workers' Compensation Act (1995).* This is the underpinning of the WCB's funding strategy.

A revision of the funding strategy is required annually to reflect actual experience and changes in the assumptions used to generate the strategy. Actual claims experience, assessable payroll (premium revenue), and investment experience for 1995 through 2001, including Bill 90, have been taken into account in developing this 2003 – 2007 strategy.

This 2003 - 2007 strategy indicates that the anticipated unfunded liability at December 31, 2002 will be higher than expected a year ago with a longer period to eliminate the unfunded liability. This is primarily due to larger than expected growth in the assessable payroll base, offset by lower investment income and by higher than expected claims costs. Legislated Obligations have increased for 2003 over 2002.

The report of the Workers' Compensation Review Committee was received in March 2002. It is anticipated that the 2003 – 2007 funding strategy may be significantly altered based on government's response to that report. This funding strategy presents the base case on which future discussions may take place.

The base case does not contemplate either a reduction in assessment rates or an increase in benefits until the unfunded liability is eliminated. The WCB has not attempted to anticipate future changes to the balance that was struck originally between the type and levels of benefits to workers, the length of the period over which the unfunded liability is eliminated and the level of assessment rates charged to employers, or future judicial and Board of Director's policy decisions.

While the WCB's financial position has improved from 1995, the Board of Directors has not adjusted the average assessment rate and will not until the government's response to the Review Committee Report is completed, as during that review an adjustment of the balance between rates and benefits may be considered.

The WCB's financial situation has improved over the past 7 years. This has allowed the Funding Strategy to be adjusted so as to reduce the period during which the unfunded was to be eliminated. To a large extent the elimination period has been used

to absorb the normal non-systemic variations in financial performance from estimates covering so many variables.

This approach has provided for stability in assessment rates which is one of the main objectives of any insurance system. The other objective of the Nova Scotia system has been the elimination of the unfunded liability which developed during the 70's, 80's & early 90's. This approach of using the unfunded liability elimination period as an adjustment factor for the difference between actual and projected has allowed both of these objectives to be met.

In 2001 the WCB's financial situation continued to improve, but not by as much as had been estimated. The Board of Directors has decided not to depart from its historic practice of using the elimination period to balance these adjustments. However the Board of Directors has also indicated that certain of the factors which resulted in the financial performance being poorer than expected in 2001 could have a longer term impact which could adversely affect the objective of reducing the elimination period in future years.

The Board has decided that should that be the case, the objective of eliminating the unfunded in a reasonable period of time may be jeopardized. Rather than reacting immediately and causing rates to respond to hopefully short term negative factors, they are simply indicating that if the period over which the unfunded liability is to be eliminated is unduly lengthened, this would cause a rate increase.

When establishing the wage loss system in 1995, the Government of Nova Scotia indicated a desire not to see rates increase beyond the existing rate of $2.54. When reviewing its funding strategy in the process of setting the 2003 rate, the Board of Directors decided to hold the average rate constant until the unfunded liability is eliminated unless there is a requirement to adjust rates as there are indications the period to eliminate the unfunded liability is unduly lengthened.

This period would be the full funding "corridor". Conditions indicating an increase might be required include new benefits being added or an increase in the costs of claims incurred or administration costs. Conditions indicating a decrease might be in order include a decrease due to falling claims cost incurred, increasing payroll or increased investment income. There has been no such requirement to adjust rates as yet.

This approach recognizes that the benefit structure is a statutory requirement leaving only the assessment rate structure and the period over which the unfunded liability is eliminated within the complete control of the Workers' Compensation Board. There are certain benefit fluctuations that may result from administrative and accident volume considerations. For example, during the year 2000, Nova Scotia experienced an 11%

increase in lost time claims. The WCB recognized that it did not have sufficient staff to deal with this increase which held into 2001, rather than dropping back to historic levels of lost time claims. As a result additional staff were hired to address this increased workload. The additional staff is intended to help ensure that those injured were assisted in their efforts to return to work. This will hopefully bring accident costs back into line with recent trends and avoid rate increases driven by difficulties associated with case management.

Under the current model the elimination period and the average assessment rate are directly linked. In other words, a decision to hold the elimination period constant could lead to a 'yo-yo' effect on rates to adjust to varying economic factors through time. Conversely, if a decision was made to hold the average assessment rate constant, the elimination period would fluctuate; a situation that may reduce the WCB's credibility.

We have introduced the concept of a "corridor" with respect to the elimination period and rates. By the very nature of economic modelling, there will be fluctuations from year to year. However, the funding strategy model does not necessarily need to be constructed in a manner that requires adjustment to assessment rates in response to every change in circumstance. If one accepts the period to eliminate the unfunded liability as a continuum with flexibility, then small changes can occur to the period without affecting rates.

To illustrate, an acceptable "corridor" could be set within which the elimination period could move without changing rates. This would allow the model to remain in balance and not cause rates to fluctuate unpredictably. However, if due to changing economic factors the elimination period would move beyond the range of the band, then assessment rates would be adjusted to keep the elimination period within the band. By signalling that rates may change in the event of the elimination period moving beyond the prescribed band, the Board of Directors could introduce an element of stability in the system while allowing for the flexibility required in a long term funding model. To date, the Board has not finalized the width of this band. We anticipate the width of the corridor would be narrowed as we get closer to full funding.

The recommended average assessment rate in 2003 is $2.54, which is divided between $1.97 for current costs and $.57 for elimination of the unfunded liability. That is, approximately 22% of the rate is being used to absorb the shortfall between investment income and the growth in the benefits liability and to eliminate the unfunded liability. The WCB recognizes that there are pressures to reduce rates and increase benefits. Given the 71.6% funded position at the end of 2001 and the limited experience with the earnings loss system, the WCB has taken the prudent course of deferring changes in rates until after the government's response to the Review Committee Report is completed and the outcome is known.

Revenues for 2003 are based on a projection for classified firms' assessable payroll of $6.71 billion, yielding assessment revenue of $172.6 million, investment income of $45.6 million, and self-insurer receipts of $34.1 million. The target for total revenues for 2003 is $252.3 million. Forecast claims cost incurred for 2003 accidents of $126.7 million and growth in the benefits liabilities for accidents of prior years of $69.4 million amount to $196.1 million.

In 2003 the amount targeted to be applied to reduce the unfunded liability is $16.9 million. This results from the total revenue target of $252.3 million minus (i) claim costs of $126.7 million, (ii) the growth in present value of the benefits liability of $69.4 million, (iii) administrative costs of $28.4 million and (iv) legislated obligations of $10.9 million.

The attached projections are estimates based on the assumptions noted. Actual results will vary from the information presented and the variation may be material.

Background

The *Workers' Compensation Act* passed in the spring of 1995 makes specific reference to the Workers' Compensation Board funding requirements in Section 115. That section states that the WCB must make an assessment on and collect from employers sufficient funds to:

a) meet the costs of all claims payable during the year;

b) subject to Section 116, meet the future costs of all claims for all injuries occurring during the year;

c) pay the expenses incurred in administering this *Act*; and

d) pay all other amounts payable from the accident fund.

This specific reference to funding requirements, when combined with the funding strategy, gives the WCB a clear guideline for funding and budgeting on an annual basis. The funding strategy's objective is to bring the workers' compensation system to "full funding", ensuring that assets are sufficient to meet liabilities.

Currently, the WCB anticipates shortening the period for eliminating the unfunded liability compared to the period contemplated in 1995. The decision to shorten the elimination period is contingent upon there being no significant changes in cost experience or revenue generation. Based on the decision to shorten the elimination

period and in the absence of further changes, the total rate may be held at $2.54 until the unfunded liability is eliminated.

The unfunded liability was $289.3 million at the end of 2001 rather than the $410.8 million expected in the original funding strategy. However, these results represent only the first seven years in a long process toward financial stability and do not yet reflect much experience with long-term disability under the new legislation. Long-term disability is the WCB's largest cost area. In addition, the net results tend to mask significant offsetting variances from the plan as described below.

In its report of August 5, 1998 titled "Understanding the Costs of Workers' Compensation in Nova Scotia ", KPMG provided this cautionary note:

"While this progress has been encouraging, the extreme financial situation is by no means resolved. The benefits of legislative and administrative changes may already be largely realized."

Notes 8 and 16 of the 2001 financial statements detailed two areas of uncertainty, actuarial assumptions and chronic pain related benefits, which might have a significant impact on the WCB's benefits, liabilities and funding strategy.

The report of the Workers' Compensation Review Committee was received in March 2002. It is anticipated that the 2003 – 2007 funding strategy may be significantly altered based on government's response to that report. This funding strategy presents the base case on which future discussions may take place. The base case does not contemplate either a reduction in assessment rates or an increase in benefits until the unfunded liability is eliminated.

Under the current model the elimination period and the average assessment rate are directly linked. In other words, a decision to hold the elimination period constant could lead to a 'yo-yo' effect on rates to adjust to varying economic factors through time. Conversely, if a decision was made to hold the average assessment rate constant, the elimination period would fluctuate; a situation that may reduce the WCB's credibility.

We have introduced the concept of a "corridor" with respect to the elimination period and rates. By the very nature of economic modelling, there will be fluctuations from year to year. However, the funding strategy model does not necessarily need to be constructed in a manner that requires adjustment to assessment rates in response to every change in circumstance. If one accepts the period to eliminate the unfunded liability as a continuum with flexibility, then small changes can occur to the period without affecting rates.

To illustrate, an acceptable "corridor" could be set within which the elimination period could move without changing rates. This would allow the model to remain in balance and not cause rates to fluctuate unpredictably. However, if due to changing economic factors the elimination period would move beyond the range of the band, then the assessment rates would be adjusted to keep the elimination period within the band. By signalling that rates may change in the event of the elimination period moving beyond the prescribed band, the Board of Directors could introduce an element of stability in the system while allowing for the flexibility required in a long term funding model. To date, the Board has not finalized the width of this band. We anticipate the width of the corridor would be narrowed as we get closer to full funding.

The original funding strategy was based on a 45-year amortization program which started in 1995 and reflected assumptions regarding estimated costs and revenues. (See Appendix G) These assumptions were based on twenty-one years of historical data indicating that the compound rate of increase in claims costs incurred and administration costs had outpaced the rate of increase in assessable payroll by more than 2%. In addition, assessable payroll had actually declined slightly and was stagnant in the three years leading up to creation of the strategy.

The original funding strategy anticipated claims costs incurred, administration and legislated obligation costs for assessed employers of $113.53 million, with assessable payroll of $4.88 billion in 2001. Actual claims costs incurred and administration costs was $118.37 million, with assessable payroll of $6.45 billion in 2001. Clearly, this increase in the revenue base of 32.2% coupled with an increase in the cost base of 10.4% represents a significant change in the WCB's financial position.

These positive economic conditions, combined with operational improvements, have improved the Workers' Compensation Board's actual financial position. **However, positive variances from the funding plan are subject to reversal in subsequent years.** An example occurred in 2001 when claims costs incurred increased 10.7%, while assessable payroll only increased 4.2%. It is particularly important to consider this because the 1995-1999 trend of increasing assessable payroll coupled with declining claims costs incurred is inconsistent with the historical pattern of costs in Nova Scotia. As assessable payroll increases claims costs usually increase, even though this was not the 1995-1999 experience of the Workers' Compensation Board of Nova Scotia.

It is important to realize that, while the financial position has significantly improved over the last seven years, there are still many years remaining before the Workers' Compensation Board achieves the overall goal of financial stability and full funding.

Recent Financial Results

The operating results for 2001 and 2000 may be attributed to the following factors:

	2001 (000's)	2000 (000's)
Assessment revenue in excess of current year costs	$39,141	$53,878
Investment income below liability Requirements*	(23,010)	(1,581)
Actuarial adjustments	2,320	(18,594)
Excess of revenues over expenses applied to reduce the unfunded liability	$18,451	$33,703

*Shortfall of investment income relative to growth in present value of the benefits liabilities.

In workers' compensation, assessment revenue should roughly equal current year costs. Otherwise transfers to or from future or past employers are occurring. Transfers from current and future employers to past employers will be the case in Nova Scotia until the unfunded liability is eliminated. The elimination of the unfunded liability will discontinue the intergenerational transfers of wealth. Currently, more than 1/5 of the rate is being used to absorb the shortfall between investment income and the growth in the benefits liability and to eliminate the unfunded liability.

Over the long term, investment income should be expected to equal liability requirements. That is, the invested funds should increase at a rate equal to the increase in the liability. This is unlikely to be achieved when there is a significant unfunded liability. Actuarial adjustments, in a stable system, should be held to marginal levels, reflecting minor differences between actual experience and estimates.

Future Claims Costs

Real changes in claims costs incurred, excluding inflation, may result from three factors:

1. The benefit structure contained in the *Workers' Compensation Act* as the governing legislation. Bill 90 mandated a review of the legislation, which was completed in March 2002. It is possible that legislation flowing from this review, as well as court cases, may expand the coverage available.

2. The number and severity of accidents which occur in work places across the province. This is normally correlated with the real growth in the economy but also reflects to some degree the shift between different sectors of the economy. This is important, as certain sectors are more subject to workplace accidents than other sectors.

3. Administrative processes can have a significant impact on claims costs incurred, primarily due to changes in the way that claims are administered. For example, the WCB's early intervention philosophy is anticipated to reduce claims costs incurred over time by shortening durations for the average claim and reducing the number of claims going on to long term disability. However this philosophy of increased early support has increased some costs as we look more broadly to determine how we might assist injured workers to return to work. These expenses are intended to reduce overall costs by helping injured workers return to work. It is important to recognize that the *Workers' Compensation Act* of Nova Scotia has legislative language on the process of estimating potential earnings ability (EPEA) requiring that alternative work be both suitable and available. Relative to other jurisdictions, this limits the impact of the EPEA process on claims costs.

Administration Costs and Legislated Obligations

The focus of the 2003 Administration and Legislated Obligations Budget is on service delivery and maintaining the WCB's financial stability. The budget is intended to ensure that current service delivery levels are maintained. This budget also provides the funding to maintain the new service delivery model currently being implemented by the Client Services Division and the services to employers as provided by the Assessment Department.

With the 1.5% increase in lost time accidents for the twelve months ended December 31, 2001, the WCB is not proposing to increase staffing over the current level. Negotiated salary adjustments and increased amortization costs will result in budget increases, as will inflationary costs to maintain existing operations. The 2002

administration budget, excluding legislated obligations, was $28.9 million. The 2003 figure is $29.1 million, an increase of $.3 million or less than 1.0%.

An increase of $2.0 million is attributable to legislated obligations. These expenditures, which are not within the control of the WCB, include the Occupational Health and Safety grant, Workers' Compensation Appeals Tribunal funding, Workers' Advisers Program funding, Rate Review Commission funding, and Workers' Compensation Review Committee funding.

The budgeted legislated obligations are as follows:

	2003	2002
OH & S	$7,737,000	$6,077,740
WCAT	1,441,000	1,280,000
WAP	1,731,000	1,556,245
Rate Review Commission	8,000	8,000
	$10,917,000	$8,921,985

Factors Considered

Funding of the workers' compensation system reflects the balance struck between the level of benefits, rates charged to employers and the WCB's funding position. When financial results are different from the target, whether better or worse, the choice becomes to adjust benefits, rates, or the WCB's funding position by lengthening or shortening the elimination period for the unfunded liability. As the level of benefits is set by the legislature, and is subject to interpretation by the courts, the funding equation is not entirely within the control of the WCB as the neutral administrator.

A variance from the plan may arise in any given year. Any variance from the plan is subject to reversal in subsequent years. It is particularly important to bear in mind that the 1995-1999 trend of increasing assessable payroll coupled with declining claims costs incurred is inconsistent with the historical pattern of costs in Nova Scotia. Usually, claim costs increase when assessable payroll increases, although this has not been the WCB's recent experience prior to 2000. Investment returns and inflation are, of course, subject to significant volatility.

It may be argued that the rates as presented in the proposed funding strategy are somewhat higher than absolutely necessary given recent experience, and that rates could be reduced. Reducing rates to exactly the amounts that would be indicated based on recent experience will result in losing any margin the WCB has to absorb

unanticipated shocks to the system, and could result in increased volatility in the assessment rates.

One possible shock could be an increase in claims costs incurred. This is possible as a result of changes to the legislation, court decisions or a significant contraction in the economy. Contractions in the economy tend to increase costs in an earnings loss system as injured workers have trouble locating post-accident employment when the economy is stagnant.

Factors to consider when constructing a strategy to eliminate the unfunded liability include:

1. Stability - regardless of the rate strategy selected, employers would likely prefer to have some certainty and a long-term outlook with respect to the direction rates are heading as opposed to a significant amount of volatility.

2. Competitiveness - at 2 1/2% of payroll, Nova Scotia rates are currently the second highest rates in the country. While the economy appears to be functioning reasonably well at this point, certainly any increases will diminish Nova Scotia's competitiveness relative to our neighbouring provinces.

3. Making policy in the context of an unfunded liability - the on-going existence of a large unfunded liability tends to have a dramatic impact on any significant policy or financial initiative considered by either the WCB or the Legislative Assembly when considering new legislation.

4. Intergenerational transfers - the sooner the unfunded liability is eliminated, the sooner intergenerational transfers between employers are avoided in terms of payments for past years being absorbed by current and future employers. This is particularly important to the extent that the mix of the economy amongst industrial sectors is changing over time. Even if the actual employers remained relatively consistent over time, their appropriate share of the risk and costs based on their industry sector might change over time.

5. Security - the continued existence of an unfunded liability consistently calls into question the sustainability of the fund.

Rationale for Key Assumptions

A key point to emphasize throughout the discussion on assumptions used in establishing the funding strategy is the interdependence of various assumptions, particularly the economic assumptions.

In some cases, the relationship between two or more assumptions plays a more significant role in the projections than the choice of individual assumptions. For example, when determining the assessment rate required to fund the cost of future injuries, it is the relationship between the rate of claims cost increase and assessable payroll growth rate that is more important than either of the individual rates. Therefore, it is important to take care in setting both individual assumptions and the relationships among the various assumptions.

The rationale for the various assumptions proposed is as follows:

1. Consumer Price Index Assumption

   Based on the attached analysis of CPI using a running 5-year, 30-year and a 75-year average, a long-term assumption of 4% is reasonable for 2003 forward.

   For medium term planning, the Conference Board of Canada forecast at April 12, 2002 indicated:

2002	1.6%
2003	2.9%
2003	2.0%
2005	1.9%
2006	2.0%
2007	1.9%

   The Bank of Canada has stated as part of its monetary policy that it intends to keep CPI between 1% and 3%. The Bank's resolve at the upper end of this limit has not been tested. It remains to be seen if the Bank will indeed ratchet interest rates up substantially to control inflation if simultaneously the economy is in recession.

   Due to the partial indexation formula that applies to clinical rating system (CRS) pensions and permanent impairment benefits (PIB), CPI increases below those assumed represent a risk from the fund's perspective. Pensions are increased each year beginning January 1, 2000 by 50% of the increase in CPI for the preceding year. This means that the other 50% of the CPI increase effectively goes to the accident fund. If CPI increases fall below those assumed in the funding strategy, on average the increases in the accident fund will also fall short of those expected.

This risk is mitigated to some extent by the effective rate of increase in supplementary benefits. The supplementary benefits are a function of other government sponsored benefits that are fully indexed to CPI increases. This means that total long-term disability benefits payable by the WCB in these situations are also effectively fully indexed. In these situations, therefore, any CPI increases below those assumed will result in gains to the fund.

2. Claims Costs Incurred

The original funding strategy assumed claims costs incurred would grow at the rate of inflation (CPI) except for health care costs which would grow at CPI plus .5%. While claims costs incurred declined in the five years ended December 31, 1999, this downward trend is not expected to continue. The trend did reverse in 2000 with claims costs growing by 8.0% and 2001 with claims costs growing by 10.7%

3. Assessable Payroll

The original funding strategy assumed that the rate of growth in claims costs incurred would exceed the rate of growth in assessable payroll by approximately 1% a year. This was reasonable based on the figures from 1971 to 1992 which indicated the compound rate of growth in assessable payroll was 9.97% versus claims costs incurred and administration which had grown at 12.48%.

This trend has been reversed in the most recent seven years where claims costs incurred and administration resulted in a compound rate of 2.80% per year while assessable payroll has grown at 4.68% per year (Exhibit 3 - Appendix C). Other jurisdictions have experienced similar trends in the six years ending in 2000; the data indicates that the Canadian average experience is declining (Exhibit 4 - Appendix C). Over the 30-year period of 1971 to 2001, claims costs incurred and administration have grown at a compound rate of 9.13% while assessable payroll has grown at 7.99%. (Exhibit 2 - Appendix C).

The question is whether the funding strategy should use the long term 1971 to 2001 or the more recent 1994 to 2001 history to forecast the rate of growth relative to claims costs incurred and administration. The average assessment rate table in Appendix A indicates the importance of the relationship between the rate of growth of claims costs incurred and assessable payroll. All other things being equal, if payroll grows 1% slower than claims costs, the average rate grows from $1.98 in 2003 to $2.06 in 2007.

The funding strategy assumes that the rate of growth in claims costs incurred exceeds the rate of growth in assessable payroll by 1% per year. If the trend seen in 1995 – 1999 were to repeat, this assumption may change with a future revision of the funding strategy. This would help to reduce the period during which the unfunded liability is eliminated, assuming all other factors remain the same.

4. Real Rate of Return

The funding strategy has a real rate of return assumption of 3.5%. The attached table indicates that 3.75% may be a more realistic real rate of return based on 5 year, 30 year running averages and 75 year running averages (Exhibit 5 - Appendix C). This discounts somewhat the last three or four years of the 1990's where returns have been exceptionally high in the United States' stock markets. However, if this trend continues, revisions of the funding strategy may require a change in this assumption.

As a result of the exceptional returns from the investment markets during the past few years, there is a difference between the originally anticipated investment revenue for 1995 to 2003 and the current forecast of investment revenue to be recorded between 1995 and 2003. Due to uncertainties over future market returns and to remain in line with the real rate of return assumption in the funding strategy, an allowance of $55 million for investment market corrections was taken for the years 2010 to 2014 by reducing investment revenue in proportion to predicted investment revenue. If the investment returns continue to meet or exceed a real rate of return of 3.5%, this difference will contribute to an earlier elimination date for the unfunded liability, assuming all other factors remain the same.

Declines in market values in the last quarter of 2000 and the first quarter of 2001 indicate how quickly gains may be erased. During this period the market value of the WCB's portfolio only increased $25 million despite cash contributions of $75 million indicating the securities held declined $50 million.

5. Timing of Assessment Premiums

The original funding strategy assumed continued payment of premiums annually in advance.

The move from payment in advance to periodic payment of assessment premiums resulted in a loss of investment revenue. These funds will no longer be available to reduce the unfunded liability. A rate increase of approximately $.03 was initially

anticipated to be required to offset the loss of investment revenue of approximately $1.5 million annually. This increase was avoided due to improved financial returns.

6. Mortality

The mortality assumption that underlies the calculation of liabilities and claims costs incurred for long-term disability and survivors' pensions will also influence the projections. The 2001 valuation maintained the 1971 group annuitant mortality table as the basis underlying liabilities under those categories for which a mortality assumption has been made. There are newer versions of the group annuitant mortality table and it is prudent to review the reasonableness of the mortality assumption from time to time. Given the general trend over recent years to increased life expectancies, it is quite possible that future valuations will feature actuarial adjustments in respect of mortality. Such adjustments, in the absence of other offsetting adjustments, would lead to increases in both liabilities and claims costs incurred projections.

Key Areas of Uncertainty

There are key areas of uncertainty that the WCB considers when it deliberates with respect to the funding strategy. Some of these areas of uncertainty include:

1. The WCB has limited experience to date with long term disability costs in an earnings loss environment. The funding strategy has not considered any increase which may be in excess of CPI. If claims costs incurred were to grow 2% faster than the general rate of inflation, the period over which the unfunded liability is eliminated would be lengthened by approximately two years. In addition, the average assessment rate would increase from the $2.23 currently anticipated in 2015 to $2.73.

2. The funding strategy has not made any provision for further reductions in claims costs incurred or reductions in the unfunded liability which may result from blending actual experience with the original earnings loss costing model results. In setting the 2003 rates, the WCB will be using the 2001 actuarial valuation which blends these results at 20% from the model and 80% from actual experience. The WCB expects to be basing calculations entirely on actual experience for the 2002 valuation. To date this has had the impact of reducing the long-term claims portion of the liability. Should current trends continue this would have the impact of slightly reducing the period for the elimination of the unfunded liability.

3. The claims costs incurred side of the funding equation is driven primarily by legislative decisions with respect to benefit levels. Given the levels of benefits in Nova Scotia relative to other jurisdictions, it is not unreasonable to think that over time there will be some pressure for benefits to increase from the short term rate (first 26 weeks) of 75% of net and the long term rate of 85% of net.

   While the funding strategy has not incorporated these changes in the scenario presented, some preliminary estimates of these changes on the rate structure were done three years ago. Assuming no change in claims volume, the work done then indicated that increasing benefits to 80% would increase the current rate by approximately $.01, to 85% would be approximately $.02, and to 90% would be approximately $.09. At 90% the impact is more significant as long-term disability benefits are increased as well as short-term benefits. Of course, over the long term these increases are subject to the same factors as our other costs. If assessable payroll growth lags claims cost growth, these rates can also grow by up to 50% by 2040, so the $.09 increase could be $.13 by 2040.

   As noted, these are the increases for the current claim volume. It is possible that an increase in the benefit level could be positively correlated with an increase in the number of claims reported, particularly on the short-term side. The WCB's actuary suggests this is difficult to quantify, but a move to an 85% of net rate for the first 26 weeks could increase the rates noted in the previous paragraph by up to 10% on short term claims and 2% on long term claims. The actuary has assumed this increase would be the same regardless of whether the benefit percentage increases to 80%, 85% or 90% (Appendix F).

   There may also be pressure to increase other benefits such as the level of the permanent impairment benefit. The indexation formula is an aspect of the benefits where there may well be some push to make improvements. Benefits may also be influenced by future changes to other government programs such as CPP and OAS that have an impact on benefits provided by the WCB. There continues to be pressure to adjust benefits for those injured prior to the introduction of the earnings loss system. Finally, some stakeholders may wish to see an open commutation system, which would increase costs.

Recent work done by our actuary regarding changes to indexing and commutation rules is contained in Appendix E. Commutation on demand could increase rates by $.13 and full indexation could increase rates by $.38.

4. A significant issue which would affect both claims costs incurred and assessment revenue is a change in the maximum assessable earnings. The WCB's actuary has recently done some work in this area. The results of this work are contained in Appendix D. While the funding strategy does not incorporate this change in the scenario presented, the WCB asked that this work be done to get some preliminary estimates of the impact on the rate structure. The work indicates that increasing the maximum assessable earnings to 152% of the average industrial wage would increase the average rate by $.01.

   It is clear that an increase in maximum assessable earnings would have positive impacts on the WCB's funding position, rate structure and insurance provided to injured workers. However, it is also clear that any change in this direction would likely be negatively received by some employers who would perceive it to be increased payroll taxation. Work to date in this area formed a useful base for the statutory review, which was completed in March 2002. Government's response to this report has yet to be determined.

5. **It is important to note that these cost estimates assume that there will be no change in the WCB's policy, practice, or experience and that there will be no coverage for new conditions. Any provision for new benefit costs flowing from judicial decisions, legislative amendments, and/or changes in WCB policy will require revisions to the funding strategy.**

   A growing trend among jurisdictions across Canada is to include future administration costs in the WCB's Liabilities. The early leaders in this approach are the fully funded jurisdictions – Manitoba, Alberta, New Brunswick and British Columbia. Quebec and Saskatchewan are currently considering a provision for inclusion in the benefits liability. The jurisdictions in an unfunded position do not currently include a provision for future administration costs. They are Nova Scotia (as noted in the WCB's Actuarial certificate in the Annual Report), Prince Edward Island, Newfoundland and Ontario.

   Experience in other jurisdictions has shown the impact of adding future administration costs to the benefits liabilities ranges from a 3.3% to 7.0% increase to the liabilities; with a more likely range of 5% – 7%.

Including a provision for future administration costs in the benefits liability is, or will be, the accounting method adopted by 6 of the jurisdictions across Canada. Including this provision will facilitate comparison to other jurisdictions and more accurately match costs to the year of accident. The WCB of Nova Scotia may choose to incorporate this provision in a subsequent year's financial statements. This would have a one time negative impact on the WCB's financial position.

6. **The attached projections are estimates based on the assumptions noted. Actual results will vary from the information presented and the variation may be material.**

Appendix A

2003 - 2007 Financial Projections

For the purposes of the Financial Projections contained in Appendix A, the funding strategy as of May 28, 2002 contained in Appendix B was used. The funding strategy figures include classified firms only. Moving from the funding strategy figures in Appendix B to the Projected Statement of Operations in Appendix A requires an addition of $29.6 million to claims costs incurred, $4.5 million to administration costs in respect of self-insured firms, and $34.1 million to assessment premium revenue.

2003-2007 PROJECTION ASSUMPTIONS
AVERAGE ASSESSMENT RATE

	Claims Cost Incurred and Admin	Unfunded Liability	Total
2003	1.97	0.57	2.54
2004	1.99	0.55	2.54
2005	2.01	0.53	2.54
2006	2.03	0.51	2.54
2007	2.05	0.49	2.54
2014	2.21	0.33	2.54
2015	2.23	0.00	2.23

WORKERS' COMPENSATION BOARD OF N.S.
PROJECTED STATEMENT OF OPERATIONS

	2001 Actual	2002 Budget	2002 Forecast	2003 Projection	2004 Projection	2005 Projection	2006 Projection	2007 Projection
REVENUE	$238,530,000	$247,884,000	$248,086,000	$252,348,000	$280,999,000	$295,626,000	$311,038,000	$327,290,000
CLAIM COSTS	$119,186,000	$113,056,000	$122,887,000	$126,705,000	$131,907,000	$137,323,000	$142,961,000	$148,833,000
GROWTH PV OF BENEFITS LIABILITY	69,306,000	66,112,000	65,194,000	69,431,000	85,320,000	91,719,000	98,598,000	105,993,000
ADMINISTRATION COSTS *	24,524,000	27,676,000	27,874,000	28,371,000	29,450,000	30,514,000	31,561,000	32,488,000
LEGISLATED OBLIGATIONS	7,063,000	8,922,000	9,884,000	10,917,000	11,353,000	11,807,000	12,279,000	12,770,000
ADJUSTMENT TO BENEFIT LIABILITIES								
	$220,079,000	$215,766,000	$225,839,000	$235,424,000	$258,030,000	$271,363,000	$285,399,000	$300,084,000
EXCESS OF REVENUES OVER EXPENSES	$18,451,000	$32,118,000	$22,247,000	$16,924,000	$22,969,000	$24,263,000	$25,639,000	$27,206,000

*** Excludes Total Capital**

Notes: **1) The average assessment rate used to calculate revenue is $2.54 for 2002-2014**

2) Claim cost estimates assume that there will be no change in the Board's policy, practice or experience; and that there will be no coverage for new conditions.

Based on administrative budget assumptions and funding strategy projections. (Funding Strategy - Current May28, 2002)

UNFUNDED LIABILITY

	2001 Actual	2002 Budget	2002 Forecast	2003 Projected	2004 Projected	2005 Projected	2006 Projected	2007 Projected
UNFUNDED LIABILITY, BEG. OF YEAR	($307,789,000)	($264,895,000)	($289,338,000)	($267,091,000)	($250,167,000)	($227,198,000)	($202,935,000)	($177,296,000)
SURPLUS (DEFICIT) APPLIED	18,451,000	32,118,000	22,247,000	16,924,000	22,969,000	24,263,000	25,639,000	27,206,000
UNFUNDED LIABILITY, END OF YEAR	($289,338,000)	($232,777,000)	($267,091,000)	($250,167,000)	($227,198,000)	($202,935,000)	($177,296,000)	($150,090,000)
FUNDED RATIO	71.60%	73.96%	75.00%	78.01%	81.42%	84.56%	87.45%	90.12%
UNFUNDED LIABILITY (ORIGINAL FUNDING STRATEGY JUNE 1, 1995)	($410,806,000)	($419,696,000)	($419,696,000)	($428,553,000)	($437,349,000)	($446,054,000)	($454,633,000)	($463,049,000)
FUNDED RATIO	40.76%	41.86%	41.86%	42.97%	44.09%	45.22%	46.37%	47.52%

UNFUNDED LIABILITY

	2001 Actual	2002 Budget	2002 Forecast	2003 Projected	2004 Projected	2005 Projected	2006 Projected	2007 Projected
UNFUNDED LIABILITY, BEG. OF YEAR	($307,789,000)	($284,895,000)	($289,338,000)	($267,091,000)	($250,167,000)	($227,198,000)	($202,935,000)	($177,296,000)
SURPLUS (DEFICIT) APPLIED	18,451,000	32,118,000	22,247,000	16,924,000	22,969,000	24,263,000	25,639,000	27,206,000
UNFUNDED LIABILITY, END OF YEAR	($289,338,000)	($252,777,000)	($267,091,000)	($250,167,000)	($227,198,000)	($202,935,000)	($177,296,000)	($150,090,000)
FUNDED RATIO	71.60%	73.98%	75.00%	78.01%	81.42%	84.56%	87.45%	90.12%
UNFUNDED LIABILITY (ORIGINAL FUNDING STRATEGY JUNE 1, 1995)	($410,876,000)	($419,636,000)	($418,535,000)	($425,553,000)	($437,349,000)	($446,054,000)	($454,533,000)	($463,046,000)
FUNDED RATIO	40.76%	41.86%	41.86%	42.97%	44.09%	45.22%	46.37%	47.52%

Appendix B

Current and Original Funding Strategies and Assumptions

2003-2007 PROJECTION ASSUMPTIONS
FUNDING STRATEGY

		2002	2003	2004 onwards
Gross Interest Rate		6.50%	6.50%	7.50%
CPI		3.00%	3.00%	4.00%
Rate of Growth:				
	Administration	Budget	Budget	CPI
	STD, Rehab Income	CPI	CPI	CPI
	LTD	CPI	CPI	CPI
	Health Care	CPI + .5%	CPI + .5%	CPI + .5%
	Assessable Payroll	CPI - 1%	CPI - 1%	CPI - 1%

Unfunded liability eliminated in 2014

Average Assessment Rate from 2003 to 2014 is $2.54.

Excess investment returns of $55 million eliminated from 2010 to 2014.

Funding Strategy - (Current) (May 28, 2002)
Base Case: Hold rate at $2.54 until full-funding, lower investment income reduction.
Administration and Legislated Obligations Budget 2003-2007; hold $2.54 until fully funded.
3% in 2002 and 2003, then 4% in 2004+; payroll assumption (CPI - 1%).
2002 Assessment Revenue and Claims Cost Incurred = Budget.

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Workers' Compensation Board of Nova Scotia

Assumptions

Admin. Costs:	CPI
Health Care, Rehab Non-Income:	CPI + 0.5%
Other Claims Costs Incurred:	CPI
Payroll:	CPI - 1.0%

Calendar Year	Total Assessment Rate	Govt. Contrib. plus UL Surcharge	Avg Assess. Rate Excl. Surcharge	Avg A/R used for admin. and new claim incurred	Assessable Payroll ($millions)	Total Revenue ($millions)	Assessment Revenue ($millions)	Assessment Penalties ($millions)	Investment Revenue ($millions)	Gross Interest Rate	Admin & Leg. Obl. ($millions)	Total Incurred Claims ($millions)	Total Incurred Claims plus Admin. ($million	Growth in PV of Liab ($millions)	Adj. To Ben. Liab ($millions)	BOY Estimated Liabilities ($000s)	BOY Estimated Assets ($000s)	BOY Net UL ($000's)	BOY Estimated Funded Percentage	Surplus (Deficit) From Op ($000's)
1995	2.64	0.62	2.09	2.02	4,788	145.90	125.81	1.70	18.40	6.50%	17.66	78.94	96.60	38.50	0.00	579,967	200,733	379,234	34.61%	10,805
1996	2.63	0.76	2.09	1.87	4,845	147.50	126.06	1.91	19.54	6.50%	18.21	72.62	90.83	53.19	0.00	617,631	249,202	368,429	40.35%	3,481
1997	2.63	0.77	2.09	1.86	5,100	159.63	131.95	2.94	24.73	6.50%	19.05	75.98	95.03	70.13	0.00	662,538	297,590	364,948	44.92%	(5,538)
1998	2.62	0.89	2.09	1.73	5,471	179.39	144.16	2.59	32.65	6.50%	21.31	73.51	94.83	43.73	40.20	740,181	369,695	370,486	49.95%	634
1999	2.62	0.93	2.09	1.69	5,824	209.82	154.28	2.78	52.76	6.50%	23.98	74.22	98.19	63.12	17.41	823,903	454,051	369,852	55.11%	31,095
2000	2.54	0.77	1.77	1.77	6,190	225.33	160.24	2.99	62.10	6.50%	28.55	80.80	109.35	82.28	2.74	890,546	551,789	338,757	61.96%	30,967
2001	2.54	0.70	1.84	1.84	6,447	206.129	155.340	2.173	48.616	6.50%	27.059	91.313	118.372	69.306	0.00	955,004	647,214	307,789	67.77%	18,451
2002	2.54	0.60	1.94	1.94	6,576	214.827	167.034	2.200	45.593	6.50%	33.230	94.156	127.386	65.194	0.00	1,002,978	713,640	289,338	71.15%	22,247
2003	2.54	0.57	1.97	1.97	6,708	218.204	170.375	2.200	45.629	6.50%	34.760	97.089	131.849	69.431	0.00	1,068,172	801,081	267,091	75.00%	16,924
2004	2.54	0.55	1.99	1.99	6,909	245.648	175.486	2.200	67.962	7.50%	36.275	101.084	137.359	85.320	0.00	1,137,603	887,436	250,167	78.01%	22,969
2005	2.54	0.53	2.01	2.01	7,116	259.019	180.751	2.200	76.068	7.50%	37.793	105.243	143.036	91.719	0.00	1,222,923	995,725	227,198	81.42%	24,263
2006	2.54	0.51	2.03	2.03	7,330	273.12	186.17	2.200	84.751	7.50%	39.312	109.575	148.89	98.598	0.00	1,314,642	1,111,707	202,935	84.56%	25,639
2007	2.54	0.49	2.05	2.05	7,550	288.01	191.76	2.200	94.056	7.50%	40.730	114.085	154.82	105.993	0.00	1,413,240	1,235,944	177,296	87.45%	27,206
2008	2.54	0.47	2.07	2.07	7,776	303.74	197.51	2.200	104.025	7.50%	42.359	118.781	161.14	113.942	0.00	1,519,233	1,369,144	150,090	90.12%	28,653
2009	2.54	0.45	2.09	2.09	8,009	320.33	203.44	2.200	114.695	7.50%	44.054	123.671	167.72	122.488	0.00	1,633,176	1,511,739	121,437	92.56%	30,119
2010	2.54	0.42	2.12	2.12	8,250	326.85	209.54	2.200	115.113	7.50%	45.816	128.763	174.58	131.675	0.00	1,755,664	1,664,346	91,318	94.80%	20,599
2011	2.54	0.40	2.14	2.14	8,497	344.53	215.83	2.200	126.503	7.50%	47.648	134.07	181.71	141.550	0.00	1,887,339	1,816,620	70,719	96.25%	21,264
2012	2.54	0.38	2.16	2.16	8,752	363.18	222.30	2.200	138.679	7.50%	49.554	139.59	189.14	152.167	0.00	2,028,889	1,979,434	49,455	97.56%	21,871
2013	2.54	0.36	2.18	2.18	9,015	382.86	228.97	2.200	151.692	7.50%	51.536	145.34	196.87	163.579	0.00	2,181,056	2,153,472	27,584	98.74%	22,411
2014	2.54	0.33	2.21	2.21	9,285	403.64	235.84	2.200	165.598	7.50%	53.598	151.32	204.92	175.848	0.00	2,344,635	2,339,462	5,173	99.78%	22,869
2015	2.23	0.00	2.23	2.23	9,564	405.83	213.27	2.200	190.363	7.50%	55.742	157.56	213.30	189.036	0.00	2,520,483	2,538,179	(17,696)	100.70%	3,496

ORIGINAL
FUNDING STRATEGY
As at June 1, 1995
Workers Compensation Board of Nova Scotia

Assumptions

Gross Interest Rate:	6.75%(1), 7.75%(4), 8.75%(t/a).
CPI:	2%(1), 3%(4), 4%(t/a).
Inflation:	
Admin, STD, Rehab:	CPI.
LTD:	0%(5), 50% of CPI (t/a).
Health Care:	CPI + 0.5%.
Payroll:	0%(5), 3%(t/a).

Calendar Year	Total Assessmen Rate	Govt. Contrib. plus UL Surcharge	Avg Assess. Rate Excl. Surcharge	Avg A/R used for admin. and new claims incurred	Net A/R avail. for UL Amort.	MOY Assessable Payroll ($millions)	MOY Amort. Payment ($000's)	MOY Gross Interest Rate	MOY Admin ($millions)	Total Incurred Claims		BOY Estimated Liabilities ($000s)	BOY Estimated Assets ($000s)	BOY Net UL ($000's)	BOY Estimated Funded Percentage	Surplus (Deficit) From Operations
1995	2.64	0.55	2.09	2.09	0.55	4,600	25,376	6.75%	17.00	79.06	96.06	564,967	200,733	364,234	35.53%	1,633
1996	2.64	0.55	2.09	2.10	0.54	4,600	24,811	7.75%	17.34	79.29	96.63	566,577	203,976	362,601	36.00%	(2,347)
1997	2.64	0.55	2.09	2.17	0.47	4,600	21,838	7.75%	17.86	81.74	99.60	584,101	219,153	364,948	37.52%	(5,615)
1998	2.64	0.55	2.09	2.23	0.41	4,600	18,774	7.75%	18.40	84.27	102.67	602,170	231,608	370,563	38.46%	(9,231)
1999	2.64	0.55	2.09	2.30	0.34	4,600	15,615	7.75%	18.95	86.88	105.83	620,800	241,007	379,793	38.82%	(13,225)
2000	2.82	0.52	2.30	2.30	0.52	4,738	24,454	8.75%	19.52	89.57	109.08	640,009	246,990	393,019	38.59%	(8,887)
2001	2.85	0.52	2.33	2.33	0.52	4,880	25,188	8.75%	20.30	93.23	113.53	666,214	264,308	401,906	39.67%	(8,900)
2002	2.87	0.52	2.35	2.35	0.52	5,027	25,944	8.75%	21.11	97.05	118.16	693,495	282,690	410,806	40.76%	(8,891)
2003	2.90	0.52	2.38	2.38	0.52	5,177	26,722	8.75%	21.95	101.02	122.98	721,896	302,200	419,696	41.86%	(8,857)
2004	2.92	0.52	2.40	2.40	0.52	5,333	27,524	8.75%	22.83	105.16	127.99	751,463	322,909	428,553	42.97%	(8,796)
2005	2.95	0.52	2.43	2.43	0.52	5,493	28,349	8.75%	23.74	109.47	133.21	782,243	344,894	437,349	44.09%	(8,704)
2006	2.97	0.52	2.45	2.45	0.52	5,657	29,200	8.75%	24.69	113.95	138.65	814,287	368,233	446,054	45.22%	(8,579)
2007	3.00	0.52	2.48	2.48	0.52	5,827	30,076	8.75%	25.68	118.62	144.31	847,646	393,013	454,633	46.37%	(8,416)
2008	3.02	0.52	2.50	2.50	0.52	6,002	30,978	8.75%	26.71	123.48	150.19	882,375	419,326	463,049	47.52%	(8,212)
2009	3.05	0.52	2.53	2.53	0.52	6,182	31,907	8.75%	27.78	128.54	156.32	918,531	447,270	471,261	48.69%	(7,961)
2010	3.08	0.52	2.56	2.56	0.52	6,367	32,865	8.75%	28.89	133.81	162.70	956,172	476,950	479,222	49.88%	(7,660)
2011	3.10	0.52	2.58	2.58	0.52	6,559	33,851	8.75%	30.04	139.29	169.34	995,358	508,477	486,881	51.08%	(7,302)
2012	3.13	0.52	2.61	2.61	0.52	6,755	34,866	8.75%	31.25	145.00	176.25	1,036,155	541,972	494,183	52.31%	(6,881)
2013	3.16	0.52	2.64	2.64	0.52	6,958	35,912	8.75%	32.50	150.95	183.44	1,078,627	577,563	501,064	53.55%	(6,393)
2014	3.18	0.52	2.66	2.66	0.52	7,167	36,990	8.75%	33.80	157.14	190.93	1,122,845	615,387	507,457	54.81%	(5,829)
2015	3.21	0.52	2.69	2.69	0.52	7,382	38,099	8.75%	35.15	163.58	198.73	1,168,879	655,593	513,286	56.09%	(5,181)
2016	3.24	0.52	2.72	2.72	0.52	7,603	39,242	8.75%	36.55	170.28	206.84	1,216,805	698,338	518,467	57.39%	(4,443)
2017	3.27	0.52	2.75	2.75	0.52	7,831	40,419	8.75%	38.02	177.27	215.28	1,266,701	743,791	522,910	58.72%	(3,604)
2018	3.30	0.52	2.78	2.78	0.52	8,066	41,632	8.75%	39.54	184.54	224.07	1,318,648	792,134	526,514	60.07%	(2,655)
2019	3.33	0.52	2.81	2.81	0.52	8,308	42,881	8.75%	41.12	192.11	233.22	1,372,731	843,562	529,169	61.45%	(1,585)
2020	3.36	0.52	2.84	2.84	0.52	8,557	44,167	8.75%	42.76	199.98	242.75	1,429,037	898,283	530,754	62.86%	(382)
2021	3.39	0.52	2.87	2.87	0.52	8,814	45,492	8.75%	44.47	208.19	252.66	1,487,658	956,522	531,135	64.30%	987
2022	3.42	0.52	2.90	2.90	0.52	9,078	46,857	8.75%	46.25	216.73	262.98	1,548,689	1,018,520	530,169	65.77%	2,474
2023	3.45	0.52	2.93	2.93	0.52	9,351	48,263	8.75%	48.10	225.62	273.72	1,612,230	1,084,536	527,694	67.27%	4,157
2024	3.48	0.52	2.96	2.96	0.52	9,631	49,711	8.75%	50.03	234.88	284.91	1,678,385	1,154,848	523,537	68.81%	6,031
2025	3.51	0.52	2.99	2.99	0.52	9,920	51,202	8.75%	52.03	244.52	296.55	1,747,261	1,229,754	517,507	70.38%	8,113
2026	3.54	0.52	3.02	3.02	0.52	10,218	52,738	8.75%	54.11	254.55	308.66	1,818,970	1,309,577	509,393	72.00%	10,425
2027	3.57	0.52	3.05	3.05	0.52	10,524	54,320	8.75%	56.27	265.00	321.27	1,893,629	1,394,661	498,968	73.65%	12,987
2028	3.60	0.52	3.08	3.08	0.52	10,840	55,950	8.75%	58.52	275.88	334.40	1,971,361	1,485,380	485,981	75.35%	15,823
2029	3.64	0.52	3.12	3.12	0.52	11,165	57,628	8.75%	60.86	287.21	348.07	2,052,291	1,582,133	470,158	77.09%	18,958
2030	3.67	0.52	3.15	3.15	0.52	11,500	59,357	8.75%	63.30	299.00	362.30	2,136,551	1,685,351	451,200	78.88%	22,420
2031	3.70	0.52	3.18	3.18	0.52	11,845	61,138	8.75%	65.83	311.27	377.11	2,224,280	1,795,500	428,780	80.72%	26,238
2032	3.74	0.52	3.22	3.22	0.52	12,201	62,972	8.75%	68.46	324.08	392.52	2,315,619	1,913,078	402,541	82.62%	30,447
2033	3.77	0.52	3.25	3.25	0.52	12,567	64,861	8.75%	71.20	337.37	408.57	2,410,719	2,038,625	372,094	84.57%	35,081
2034	3.81	0.52	3.29	3.29	0.52	12,944	66,807	8.75%	74.05	351.22	425.27	2,509,734	2,172,721	337,013	86.57%	40,180
2035	3.84	0.52	3.32	3.32	0.52	13,332	68,811	8.75%	77.01	365.65	442.66	2,612,826	2,315,993	296,833	88.64%	45,786
2036	3.88	0.52	3.36	3.36	0.52	13,732	70,876	8.75%	80.09	380.67	460.76	2,720,164	2,469,117	251,047	90.77%	51,945
2037	3.91	0.52	3.39	3.39	0.52	14,144	73,002	8.75%	83.30	396.31	479.61	2,831,922	2,632,820	199,102	92.97%	58,707
2038	3.95	0.52	3.43	3.43	0.52	14,568	75,192	8.75%	86.63	412.59	499.22	2,948,283	2,807,888	140,395	95.24%	66,128
2039	3.98	0.52	3.46	3.46	0.52	15,005	77,448	8.75%	90.09	429.55	519.64	3,069,438	2,995,171	74,267	97.58%	74,267
2040	3.50	0.00	3.50	3.50	0.00	15,456	0	8.75%	93.70	447.20	540.90	3,195,584	3,195,584	(0)	100.00%	0

Appendix C

Key Historical Trends

- Assessable Payroll
- Claims Costs Incurred
- Administration Costs
- Real Rate of Return
- Consumer Price Index

EXHIBIT #1 - Compound Rate from 1971 to 1992
WCB of Nova Scotia

Year	Net Admin. ($ millions)		Net CCI ($ millions)		*1 CCI + Admin ($ millons)		*2 Assessable Payroll ($ millions)	
1971	0.69	13.91%	7.91	12.34%	8.6	12.48%	642	9.97%
1972	0.73		9.57		10.3		729	
1973	0.80		9.80		10.6		838	
1974	0.94		11.96		12.9		969	
1975	1.10		15.20		16.3		1,148	
1976	1.37		17.83		19.2		1,419	
1977	1.44		19.96		21.4		1,512	
1978	1.50		21.00		22.5		1,621	
1979	1.68		23.32		25		1,742	
1980	1.87		28.03		29.9		2,051	
1981	2.41		30.89		33.3		2,200	
1982	2.09		32.01		34.1		2,389	
1983	2.17		34.33		36.5		2,547	
1984	2.92		38.58		41.5		2,722	
1985	3.79		41.51		45.3		3,141	
1986	5.01		51.79		56.8		3,446	
1987	5.52		59.08		64.6		3,727	
1988	6.53		66.37		72.9		4,042	
1989	7.68		71.72		79.4		4,381	
1990	8.76		84.54		93.3		4,757	
1991	8.95		88.43		97.38		4,760	
1992	10.69		90.96		101.65		4,720	

*1 - Total cliam costs incurred plus administration expenses and legislated obligations less self-insured expenditures.
*2 - Total assessable payroll

EXHIBIT # 2 - Compound Rate for Thirty Year Period WCB of Nova Scotia

Year	Net Admin. ($ millions)		Net CCI ($ millions)		*1 CCI + Admin ($ millions)		*2 Assessable Payroll ($ millions)	
1971	0.69	13.01%	7.91	8.50%	8.6	9.13%	642	7.99%
1972	0.73		9.57		10.30		729	
1973	0.80		9.80		10.60		838	
1974	0.94		11.96		12.90		969	
1975	1.10		15.20		16.30		1,148	
1976	1.37		17.83		19.20		1,419	
1977	1.44		19.96		21.40		1,512	
1978	1.50		21.00		22.50		1,621	
1979	1.68		23.32		25.00		1,742	
1980	1.87		28.03		29.90		2,051	
1981	2.41		30.89		33.30		2,200	
1982	2.09		32.01		34.10		2,389	
1983	2.17		34.33		36.50		2,547	
1984	2.92		38.58		41.50		2,722	
1985	3.79		41.51		45.30		3,141	
1986	5.01		51.79		56.80		3,446	
1987	5.52		59.08		64.60		3,727	
1988	6.53		66.37		72.90		4,042	
1989	7.68		71.72		79.40		4,381	
1990	8.76		84.54		93.30		4,757	
1991	8.95		88.43		97.38		4,760	
1992	10.69		90.96		101.65		4,720	
1993	12.97		91.45		104.42		4,670	
1994	16.22		81.32		97.54		4,680	
1995	17.66		78.94		96.59		4,800	
1996	18.21		72.62		90.83		4,840	
1997	19.05		75.98		95.03		5,140	
1998	21.31		73.63		94.95		5,471	
1999	23.98		74.22		98.2		5,824	
2000	28.55		80.80		109.35		6,190	
2001	27.06		91.31		118.37		6,447	

*1 - Total claim costs incurred plus administration expenses and legislated obligations less self-insured expenditures.
*2 - Total assessable payroll

EXHIBIT # 3 - Compound Rate for Seven Year Period WCB of Nova Scotia

Year	Net Admin. ($ millions)		Net CCI ($ millions)		*1 CCI + Admin ($ millons)		*2 Assessable Payroll ($ millions)	
1994	16.22	7.59%	81.32	1.67%	97.54	2.80%	4,680	4.68%
1995	17.66		78.94		96.59		4,800	
1996	18.21		72.62		90.83		4,840	
1997	19.05		75.98		95.03		5,140	
1998	21.31		73.63		94.95		5,471	
1999	23.98		74.22		98.2		5,824	
2000	28.55		80.80		109.35		6,190	
2001	27.06		91.31		118.37		6,447	

EXHIBIT # 4 - **Compound Rate for Six Year Period**
Canadian WCB Totals

Year	*1 Benefit Costs per AWCBC ($ millons)		*2 Assessable Payroll ($ millions)	
1994	5,436	3.65%	240,997	4.17%
1995	5,693		247,733	
1996	5,737		249,560	
1997	5,667		260,950	
1998	5,593		274,000	
1999	6,379		288,316	
2000	6,741		307,875	

Exhibit #5

BASIC VARIABLES - SINGLE YEAR CHANGES: YEAR-END TO YEAR-END

Year	Consumer Price Index	Benchmark Return	Benchmark Return Minus CPI		Benchmark Return Minus CPI Running 5-Year Average	Benchmark Return Minus CPI Running 30-Year Average	Benchmark Return Minus CPI Running 75-Year Average	Benchmark Return Minus CPI Running Ave from 1925 to current year	CPI Running 5-Year Average	CPI Running 30-Year Average	CPI Running 75-Year Average	CPI Running Ave from 1925 to current year
1925	2.90%	19.31%	16.41%					16.41%				2.90%
1926	-1.41%	16.81%	18.22%					17.32%				0.75%
1927	-1.43%	31.02%	32.45%					22.36%				0.02%
1928	0.72%	19.98%	19.26%					21.59%				0.20%
1929	2.88%	-6.02%	-8.90%		15.49%			15.49%	0.73%			0.73%
1930	-6.29%	-14.84%	-8.55%		10.50%			11.48%	-1.11%			-0.44%
1931	-9.70%	-21.76%	-12.06%		4.44%			8.12%	-2.76%			-1.76%
1932	-8.25%	-2.80%	5.46%		-0.96%			7.79%	-4.13%			-2.57%
1933	-1.80%	33.93%	35.73%		2.33%			10.89%	-4.63%			-2.49%
1934	0.92%	19.07%	18.15%		7.74%			11.62%	-5.03%			-2.15%
1935	2.73%	18.73%	16.00%		12.65%			12.01%	-3.22%			-1.70%
1936	0.88%	19.15%	18.27%		18.72%			12.54%	-1.11%			-1.49%
1937	4.39%	-9.67%	-14.06%		14.82%			10.49%	1.42%			-1.04%
1938	-2.52%	7.48%	10.00%		9.67%			10.45%	1.28%			-1.14%
1939	2.59%	-0.89%	-3.48%		5.34%			9.53%	1.61%			-0.89%
1940	5.04%	-8.40%	-13.44%		-0.54%			8.09%	2.08%			-0.52%
1976	5.87%	16.37%	10.50%	7.75%	-2.27%	4.33%		5.77%	8.39%	4.15%		2.55%
1977	9.45%	6.72%	-2.73%	7.60%	-4.88%	4.66%		5.61%	9.30%	3.96%		2.68%
1978	8.44%	15.67%	7.23%	8.18%	-1.18%	5.03%		5.64%	9.12%	3.95%		2.79%
1979	9.69%	21.07%	11.38%	8.23%	6.75%	4.89%		5.74%	8.59%	4.23%		2.91%
1980	11.20%	20.54%	9.34%	8.03%	7.14%	4.59%		5.81%	8.93%	4.41%		3.06%
1981	12.20%	-5.32%	-17.52%	7.95%	1.54%	3.93%		5.40%	10.20%	4.46%		3.22%
1982	9.23%	23.41%	14.18%	9.77%	4.92%	4.26%		5.55%	10.15%	4.82%		3.33%
1983	4.51%	22.70%	18.19%	9.43%	7.11%	4.80%		5.76%	9.37%	4.97%		3.35%
1984	3.77%	7.40%	3.63%	8.70%	5.56%	3.94%		5.73%	8.18%	5.09%		3.35%
1985	4.38%	27.09%	22.71%	9.16%	8.24%	4.10%		6.01%	6.82%	5.22%		3.37%
1986	4.19%	13.72%	9.53%	7.80%	13.65%	4.37%		6.06%	5.22%	5.25%		3.38%
1987	4.12%	4.86%	0.74%	7.61%	10.96%	4.71%		5.98%	4.19%	5.33%		3.39%
1988	3.96%	10.93%	6.97%	8.47%	8.71%	4.41%		5.99%	4.08%	5.38%		3.40%
1989	5.17%	18.54%	13.37%	8.69%	10.66%	4.81%		6.11%	4.36%	5.50%		3.43%
1990	5.00%	-6.70%	-11.70%	7.91%	3.78%	4.33%		5.84%	4.49%	5.63%		3.45%
1991	3.78%	17.91%	14.13%	11.83%	4.70%	4.02%		5.96%	4.41%	5.74%		3.46%
1992	2.14%	5.94%	3.80%	11.25%	5.31%	4.30%		5.93%	4.01%	5.76%		3.44%
1993	1.70%	26.63%	24.93%	13.74%	8.90%	4.76%		6.21%	3.56%	5.76%		3.41%
1994	0.23%	-1.59%	-1.82%	8.14%	5.87%	4.24%		6.09%	2.57%	5.70%		3.37%
1995	1.75%	19.85%	18.10%	18.10%	11.83%	4.76%		6.26%	1.92%	5.65%		3.35%
1996	2.17%	19.37%	17.20%	17.65%	12.44%	5.58%		6.41%	1.60%	5.61%		3.33%
1997	0.73%	16.79%	16.06%	17.12%	14.89%	5.87%		6.54%	1.32%	5.50%		3.29%
1998*	1.02%	9.47%	8.45%	14.95%	11.60%	5.91%	6.66%	-0.25%	1.18%	5.40%	3.25%	-0.13%
1999*	2.60%	15.68%	13.08%	13.90%	14.58%	6.58%	6.48%	-0.26%	1.65%	5.33%	3.26%	-0.13%
2000	3.20%	6.21%	3.01%	12.25%	11.56%	6.52%	6.16%	6.61%	1.94%	5.39%	3.29%	3.25%
2001	0.70%	-4.60%	-5.30%	8.45%	7.06%	6.19%	5.73%	6.45%	1.65%	5.24%	3.31%	3.22%

Asset Class	BenchMark Index	
Cash	91-Day T-Bills	*2001 Source (Tower Perrin Performance Summary)
Fixed Income	Canada Long Bonds	SM T-Bill Index
Canadian Equities	Canadian Common Stock Index	SMU Index
U.S. Equities	U.S. Common Stock in Canadian Dollars	TSE 300 Index
Int'l Equities	World Excluding U.S. Stock Index	S&P 500 Index
		MSCI EAFE Index

NOTE:
Benchmark is as follows: 1924-1933 - 40% Fixed Income, 60% Canadian Equity
1934-1937 - 5% Cash, 35% Fixed Income, 60% Canadian Equity
1941-1986 - 5% Cash, 35% Fixed Income, 40% Canadian Equity, 20% U.S. Equity
1987-2001 - 5% Cash, 35% Fixed Income, 40% Canadian Equity; 10% U.S. Equity,
10% International Equity

Appendix D

Actuarial Review - Impact of a Change in Maximum Assessable Earnings

WORKERS' COMPENSATION BOARD OF NOVA SCOTIA

MEMO

TO: File

FROM: Leo McKenna

SUBJECT: Maximum Assessable/Insurable Earnings

DATE: June 5, 2002

Attached is a background paper prepared for the Workers' Compensation Statutory Review Committee providing information on a possible change to the maximum assessable/insurable earnings figure. Preliminary estimates of the impact of a possible change from the current assessable maximum figure to $44,600 indicated that our premium revenue could increase by approximately $1.76 million dollars. Most of the premium revenue generated by this change would be used to accommodate increased claims costs incurred, however, a portion of the increase would be the surcharge for the unfunded liability. This amount, which has been roughly estimated at $.5 million dollars, would be available each year to reduce the unfunded liability. Assuming the period over which the unfunded liability is to be eliminated is held constant, impact of this change would be to reduce the average rate by approximately $0.01.

WORKERS' COMPENSATION BOARD OF NOVA SCOTIA

2001 Statutory Review:

Background information on the maximum assessable/insurable earnings

Prepared by Corporate Policy, Planning and Evaluation
Workers' Compensation Board of Nova Scotia

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Executive Summary

This paper provides background information on the current maximum assessable/insurable earnings used in Nova Scotia. The level of the current maximum is on the terms of reference for the 2001 statutory review. A recommendation for an appropriate maximum level is not provided in this document. Rather, it outlines a possible framework for analysis of the current level for the statutory review process.

The method currently used to calculate the maximum insurable earnings is outlined under section 41(c) of the *Workers' Compensation Act*, which states that workers' maximum gross earnings shall be "a percentage, determined by the Governor in Council [the Cabinet] of the average industrial wage for the Province".

The current percentage of the average industrial wage for the Province is outlined in regulation. This percentage is **152%** of the 'average weekly earnings, for all employees, industrial aggregate, Nova Scotia' for the 12-month period ending March 31 in the preceding calendar year.

Nova Scotia's maximum earnings is the second lowest in Canada. However, a review of other jurisdictions' maximums is not necessarily the most reliable method for determining an appropriate level. This is because regional and economic variations have an effect on the maximum levels in each jurisdiction. This paper proposes two measures for determining an appropriate benchmark for comparison purposes:

1. Identify an appropriate percentage of injured workers whose earnings should be fully covered under the maximum insurable earnings; and/or

2. Determine how the maximum in Nova Scotia compares to other jurisdictions as a percentage of each province's average industrial wage.

At present, approximately 85% of injured workers in Nova Scotia have earnings less than $40,500[1] (based on earnings information submitted when a claim is registered with the WCB). Therefore, the remaining 15% of injured workers receive benefits based on *less than* their actual earnings. Most jurisdictions indicate full insurable earnings coverage for approximately 90-95% of their workers. Therefore, from this perspective, the current maximum in Nova Scotia provides less coverage than other jurisdictions.

The table on the following page summarizes a number of different maximum levels, and the corresponding percentage of workers who would be fully covered under each level.

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1 Maximum insurable earnings data for 2000 is used in this document.

Percentage of workers who would be covered at full earnings under different maximums

Maximum	% of AIW	Percentage of workers Covered at full earnings
$40,500	152%	85%
$44,000	165%	89%.
$50,000	188%	94%
$62,000	232%	98%

A second method used to evaluate the appropriateness of Nova Scotia's maximum is to examine other provinces' maximums as a percentage of their respective provincial average industrial wage. The Average Industrial Wage in each jurisdiction was calculated using the same method used in Nova Scotia. These average industrial wages were then compared to the maximum insurable earnings in each jurisdiction to determine the percentage value. The results of this analysis using the 2000 maximum level as a benchmark are illustrated as follows:

Province	Average Industrial Wage	Maximum Insurable Earnings	Percentage of AIW % (calculated)
Manitoba	$28,230	$52,720	187%
British Columbia	32,260	58,000	180%
Ontario	33,590	59,300	176%
Yukon	34,922	60,000	171%
Saskatchewan	28,093	48,000	171%
Quebec	29,656	50,500	170%
Newfoundland	27,711	45,500	164%
New Brunswick	27,335	45,100	165%[2]
NWT & Nunavut	37,683	60,000	159%
Nova Scotia	26,636	40,500	152%
Alberta	32,082	48,000	152%
PEI	25,063	36,600	146%

[2]New Brunswick publishes its maximum at 150% of NBIAE. The NBIAE was set at a 'base year' of $27,323 for 1993, and increased annually by the percentage increase in the Consumer Price Index (CPI) for Canada. It is therefore calculated differently than in Nova Scotia.

This information suggests that for Nova Scotia to be within the same range of full coverage as most other jurisdictions, the maximum would need to be increased to somewhere in the range of $44,000 - $50,000 (representing a percentage of average industrial wage equal to 165% -180%).

In 1999, an actuarial review examined the impact of a change in maximum assessable earnings on gross assessable earnings, incurred claims, and on the Funding Strategy. The analysis

suggested that from a financial perspective, raising the maximum would shorten the period of amortization of the unfunded liability but not to any significant degree. If the Statutory Review Committee wishes to explore the impact of any particular maximum level in detail an updated financial analysis would need to be conducted.

The WCB has identified the employers which would be most impacted by an increase in the assessable maximum. If the maximum were to be increased to $49,600,[2] there would be approximately 3,548 employers that would see an increase in their assessment premium. This represents approximately 24% of the 15,800 employers registered with the WCB. The following shows the anticipated impact on employers' premiums associated with a maximum assessable earnings amount of $49,600:

Projected increase in premium (range)	Average premium paid in 1999	Average percentage increase in premium	Number of employers
$1 - $1,000	$8,697	7%	2,776
$1,000 - $10,000	$49,201	8%	687
$10,001 - $20,000	$200,220	10%	39
$20,001 - $50,000	$447,600	11%	27
$50,000 - $100,000	$862,058	11%	10
$100,000 - $500,000	$1,910,203	13%	6

This information illustrates that approximately 24% of employers registered with the WCB (3,548) would experience a 7-10% increase in their present assessment premiums. For some employers this increase would partially be offset by reduced costs associated with top-up of WCB benefits.

There are approximately 190 employers in Nova Scotia known to provide top-up payments to injured workers (with 49,000 employees covered by collective agreements/ employment contracts providing top-up payments). These employers would have somewhat less of a financial impact due to savings associated with reduced top-up payments, although the overall net impact is beyond the scope of this paper.

2 Data obtained from Canada Customs and Revenue Agency based on maximum assessable earnings of $49,600.

Options for increasing the maximum assessable/insurable earnings

Introduction

The maximum *assessable* earnings is a statutory ceiling placed on workers' earnings for purposes of calculating assessment premiums. The maximum *insurable* earnings is also a statutory ceiling, which is placed on workers' earnings for purposes of calculating the benefit rate.[3]

The current maximum level is part of the terms of reference for the 2001 statutory review. This paper provides background information on the current maximum earnings, and discusses a possible framework for examining the appropriateness of the current maximum.

Background

The underlying goal of the workers' compensation system is provide adequate protection for injured workers in the event of a workplace injury. In principle, the protection afforded to injured workers should provide for *full coverage* - workers should receive income replacement based on their actual earnings lost as a result of a workplace injury.

Although full coverage is a commendable goal in workers compensation, historically this has not been the reality in Canada. The root of compensation law in Canada, based on the recommendations of Sir William Meredith, acknowledged that full coverage for all workers was not practical.[4] While the maximum amount was adequate at the time to cover the income of most wage earners, Meredith recognized that it would not provide adequate coverage for high-income earners.

Nova Scotia, like other jurisdictions in Canada, has historically had a ceiling placed on the level

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[3] The assessable and insurable earnings levels are the same value. This document uses the term 'maximum' to describe both the maximum insurable and assessable earnings level.

[4] The Meredith Report recommended that compensation be based on a maximum insurable earnings level of 2,000.

of assessable and insurable earnings. The maximum in Nova Scotia has historically been subject to periodic adjustment. Prior to the introduction of the new *Workers' Compensation Act* in 1996, all changes to the maximum were done on an ad-hoc basis by Order in Council. Shown below are the changes in the maximum over the past 20 years:

Table 1
Maximum Assessable/Insurable Earnings - 1978 to 2001

1978	$12,000
1979-1980	$15,000
1981-1984	$19,000
1985	$24,000
1986-1989	$28,000
1989	$29,000
1990-1994	$36,000
1995	$38,000
1996 -97	$38,600
1998	$39,300
1999	$39,700
2000	$40,500
2001	$41,100

When the new *Act* was introduced in 1996, the method used to calculate the maximum insurable earnings was changed. Section 41(c) of the *Workers' Compensation Act* states that workers' maximum gross earnings shall be "a percentage, determined by the Governor in Council [the Cabinet] of the average industrial wage for the Province".

The current percentage of the average industrial wage for the Province is outlined in regulation (Order-in-Council 96-695, dated 10/9/96). This percentage is **152%** of the average weekly earnings, for all employees, industrial aggregate, Nova Scotia' for the 12-month period ending March 31 in the preceding calendar year[5] Section 22 of the General Regulations states:

> 22 (1) In this Section, "average industrial wage for Nova Scotia" means the wage reported by Statistics Canada as 'Average weekly earnings, for all employees.

5 Derived from Statistics Canada publication "Employment, Earnings and Hours, 2000 Statistics Canada.

industrial aggregate, Nova Scotia', for the 12-month period ending March 31 in the preceding calendar year.

(2) Subject to subsection (3), the percentage for purposes of clause 41(c) of the Act is 152%.

(3) The amount derived by multiplying the average industrial wage by 152% shall, for purposes of Sections 41 and 124 of the Act, be rounded to the nearest $100.

In 2001, the maximum is **$41,100.** This is an increase of $600 (1.5%) from the 2000 level of $40,500.

Increasing the Maximum Insurable Earnings - What is an appropriate level?

Table 2 shows a comparison of maximum earnings available in other jurisdictions. In 2000, the other provinces' maximum earnings levels ranged from $36,600 (PEI) to $60,000 (NWT & Nunavut). Appendix A provides an overview of the methods used in each jurisdiction to calculate their respective maximums.

Table 2 Maximum Insurable Earnings - Other Jurisdictions (2000)

Province	Maximum Insurable Earnings
NWT & Nunavut	$60,000
Yukon	$60,000
Ontario	$59,300
British Columbia	$58,000
Manitoba	$52,720
Quebec	$50,500
Alberta	$48,000
Saskatchewan	$48,000
Newfoundland	$45,500
New Brunswick	$45,100
Nova Scotia	$40,500
Prince Edward Island	$36,600

Establishing a benchmark for what constitutes an 'appropriate' level of coverage is not an easy task. Any ceiling is, by its nature, somewhat arbitrary in nature. Furthermore, although a cross-

jurisdictional analysis is useful for 'face value' comparison, a review of other jurisdictions' maximums is not necessarily the most reliable method for determining an appropriate level. Regional and economic variations have an effect on the maximum levels in each jurisdiction. It is therefore necessary to adopt some type of standard benchmark for comparison purposes.

This paper examines two approaches for Nova Scotia in order to determine an appropriate level of maximum insurable earnings:

- *Identify an appropriate percentage of injured workers whose earnings should be fully covered under the maximum insurable earnings; and/or*
- *Determine how the maximum in Nova Scotia compares to other jurisdictions as a percentage of each province's average industrial wage.*

Percentage of injured workers whose earnings should be fully covered

An argument for increasing the level of maximum insurable/assessable earnings is to insure the highest possible number of covered workers receive earnings-replacement based their *actual* established earnings. At present, approximately 85% of injured workers in Nova Scotia have earnings less than $40,500. Therefore, the remaining 15% of injured workers receive benefits based on *less than* their actual earnings. These workers therefore are not provided with full replacement of their earnings-loss in the event of a workplace injury.

What is an acceptable proportion of injured workers to have their earnings fully covered? Is the current level of 85% appropriate? Most jurisdictions indicate full maximum insurable earnings coverage for approximately 90-95% of their workers. Table 3 provides a breakdown of jurisdictions that reported percentages.

Table 3 - Percentage of workers covered at full earnings in other jurisdictions

Province	Maximum Insurable Earnings	% of workers with earnings within the maximum
NWT & Nunavut	$60,000	not available
Yukon	$60,000	89%
Ontario	$59,300	96%
British Columbia	$58,000	95%
Manitoba	$52,720	not available
Quebec	$50,500	not available
Alberta	$48,000	90%
Saskatchewan	$48,000	93%
Newfoundland	$45,500	93%
New Brunswick	$45,100	96%
Nova Scotia	$40,500	85%
Prince Edward Island	$36,600	not available

Therefore, from this perspective, the current maximum in Nova Scotia provides less coverage than most other jurisdictions. The following table examines a number of different maximum levels, and the corresponding percentage of workers who would covered at full earnings:

Percentage of workers covered at full earnings under different maximums

Maximum	% of AIW	Percentage of workers Covered at full earnings
$40,500	152%	85%
$44,000	165%	89%.
$50,000	188%	94%
$62.000	232%	98%

If the maximum were to be increased to $44,000, approximately 89% of workers would receive benefits based on their actual earnings levels. If the maximum is increased to $50,000, approximately 94% of workers would receive benefits based on their actual earnings levels. At $62,000 the coverage increases to approximately 98%.

This suggests that for Nova Scotia to be within the same range of 'full coverage' as most other jurisdictions, the maximum would need to be increased to at least $44,000 (89% of workers fully covered).

Maximum as a percentage of provincial Average Industrial Wage

A second method for determining a standard measure for comparison purposes is to examine other provinces' maximums as a percentage of their respective average industrial wage. The method utilized by Nova Scotia to calculate the maximum (using a percentage of average industrial wage in the province) was duplicated for each jurisdiction.

The Average Industrial Wage in each province was calculated using the average weekly earnings for all employees in the respective province, from the industrial aggregate as calculated from Statistics Canada information, from April 1, 1998 to March 31, 1999. These average industrial wages were then compared to the Maximum Insurable Earnings in each jurisdiction to determine the percentage value (in the last column).

It is important to note that each jurisdiction calculates their maximums differently than Nova Scotia. Therefore, this method is merely used as a means of controlling for economic variations across the country. The results of this analysis are illustrated in table 5.

Table 5 -
Maximum Insurable Earnings as percentage of Average Industrial Wage across Canada

Province	Average Industrial Wage[1]	Maximum Insurable Earnings	Percentage of AIW % (calculated)
Manitoba	$28,230	$52,720	187%
British Columbia	32,260	58,000	180%
Ontario	33,590	59,300	176%
Yukon	34,922	60,000	171%
Saskatchewan	28,093	48,000	171%
Quebec	29,656	50,500	170%
Newfoundland	27,711	45,500	164%
New Brunswick	27,335	45,100	165%[2]
NWT & Nunavut	37,683	60,000	159%
Nova Scotia	26,636	40,500	152%
Alberta	32,082	48,000	152%
PEI	25,063	36,600	146%

[1] Data derived by examining average average weekly earnings, for all employees, industrial aggregate, in each jurisdiction for the period April 1, 1998 to March 31, 1999. Information obtained from Statistics Canada publication Employment, Earnings and Hours, 1999 - Cat. No. 72-002-XPB. Note: The Actual method used to calculate the maximum varies across each jurisdiction.

[2]New Brunswick publishes its maximum at 150% of NBIAE. The NBIAE was set at a 'base year' of $27,323 for 1993, and increased annually by the percentage increase in the Consumer Price Index (CPI) for Canada. It is therefore calculated differently than Nova Scotia's.

As table 5 illustrates, once regional economic variations are controlled for, Nova Scotia remains toward the lower end of the list in Canada. Generally, western provinces have higher maximums and a higher percentage of average industrial earnings than eastern provinces (Alberta and the northern territories are exceptions).

The average maximum as a percentage of average industrial wage across Canada is approximately 166%. New Brunswick's maximum is 165% of their average industrial wage. If Nova Scotia changed its maximum to 165% of the provincial average industrial wage, the maximum would be $44,000. This maximum is the level necessary to provide at least 89% of workers with full coverage.

Impact of Increasing Maximum

In 1999, an actuarial analysis was conducted by Eckler Partners, which examined the impact of a change in maximum assessable earnings on gross assessable earnings, incurred claims, and on the Funding Strategy. This information was presented to the Board of Directors in May, 2000. In conducting the analysis, the actuary examined the impact of increasing the maximum earnings to $62,100. This level provides full coverage for nearly all workers (98%) in the province.

The information received through the actuarial analysis suggested that increasing the maximum insurable/assessable earnings can be considered revenue-positive. Although in theory an increase in the maximum will be revenue neutral, the generation of additional revenue through the unfunded liability 'surcharge' would impact finances positively.

Given the most the most recent funding strategy it is predicted that the impact of an increase to the current maximum level would be less than a year reduction on the amortization period of the unfunded liability, with no change to the projected average assessment rate. If the government wishes to explore a specific maximum level in detail, the WCB would conduct an up-to-date financial impact analysis.

The WCB has determined the employers which would be most impacted by an increase in the assessable maximum. If the maximum were to be increased to $49,600, there would be approximately 3,548 employers that would see an increase in their assessment premium. This represents approximately 23% of the 15,800 accounts registered with the WCB.

The following provides a breakdown of the increase in premium for the 3,548 employers that would experience an increase:

Table 6 - Impact on employers with an increase maximum of $49,600 (based on 1999 payroll data obtained from CCRA)

Increase in premium (range)	Average premium paid in 1999	Average percentage increase in premium	Number of employers
$1 - $1,000	$8,697	7%	2,776
$1,000 - $10,000	$49,201	8%	687
$10,001 - $20,000	$200,220	10%	39
$20,001 - $50,000	$447,600	11%	27
$50,000 - $100,000	$862,058	11%	10
$100,000 - $500,000	$1,910,203	13%	6

This information illustrates that approximately 24% of employers registered with the WCB (3,548) would experience approximately a 7-10% increase in their current assessment premiums. The vast majority of these employers would experience an increase in premium of less than $1,000, although there are approximately 82 employers that would experience annual increases greater than $10,000.

For some employers this increase would partially be offset by reduced costs associated with top-up of WCB benefits. Typically, supplementary plans providing top-up of workers' compensation benefits pay the difference between the WCB amount and the worker's actual pay. Increasing the level of maximum earnings that is covered by the WCB would decrease these secondary costs.

There are approximately 190 employers in Nova Scotia known to provide top-up payments to injured workers (with 49,000 employees covered by collective agreements/ employment contracts providing top-up payments). These employers would have somewhat less of a financial impact due to savings associated with reduced top-up payments, although the overall net impact is not known.

Summary

As a matter of principle in workers' compensation, there should adequate coverage of earnings-replacement for workers in the event of a workplace injury. In other words, as many workers as possible should have earnings replacement benefits based on a percentage of their actual earnings.

In Nova Scotia approximately 85% of injured worker's receive earnings-replacement benefits based on a percentage of their actual wage. This is lower than other jurisdictions in Canada, which generally provide wage replacement based on full earnings for approximately 90-95% of injured workers. For Nova Scotia to be within this range the maximum insurable/assessable earnings would need to be increased somewhere between $44,000 - $50,000 (which translates to between 165% - 188% of AIW).

Although in theory an increase in the maximum will be revenue neutral, the generation of additional revenue through the unfunded liability 'surcharge' would impact finances positively. Given the most the most recent funding strategy it is predicted that the impact of an increase to the current maximum level would be less than a year reduction on the amortization period of the unfunded liability, with no change to the projected average assessment rate.

Based on CCRA data there would be up to 3,500 employers (24% of all employers registered) that would experience a 7-10% increase in their assessment premiums, if the maximum were increased within this range. For some employers this increase would partially be offset by reduced costs associated with top-up of WCB benefits.

Appendix A - Methods used in other jurisdictions to calculate maximum insurable earnings

Juris-diction	Annual amount	Effective Date	Method of Adjustment
Alberta	$48,600	Jan. 1, 2000	By order of the Board of Directors per section 51(4).
B.C.	$58,000	Jan. 1, 2000	Sections 33 (8) and 33 (10). Determined each September to take effect January 1. Annual average wage compared to the average for 1984 (base year). Maximum wage for coming year is determined by applying that relationship to $40,000.
Manitoba	$52,720	Jan. 1,2000	Subsection 44(1) by regulation based on industrial average wage.
N. B.	$45,100	Jan. 1, 2000	Section 38.1(3). Maximum annual earnings are set as of January 1 each year and shall equal one and a half times the N.B. Industrial Aggregate Earnings. The NBIAE is set under section 38.1(1) at $27,323 for 1993 and increased annually by the percentage increase in the Consumer Price Index for Canada. The increase is set on January 1 of each year under section 37.01.
Nfld.	$45,500	Jan. 1, 1983	Regulation in accordance with s. 80(8).
NWT & Nunavut	$60,000	Jan 1, 1999	Board of Directors must make annual recommendations to the Minister, and Act must be amended to change the level of maximum earnings.
Nova Scotia	$40,500	Jan. 1, 2000 for accidents on or after January 1, 2000	Section 41. Order in Council. Equal to 152% of N.S. average industrial wage (rounded to nearest $100).
Ontario	$59,300	Jan. 1, 2000 for accidents on or after Jan. 1, 2000	Effective on the first day of January of each year. Beginning January 1, 1992, the maximum earnings covered for accidents occurring in each year will be 175% of the Average Industrial Wage for Ontario, determined in accordance with s. 54. An indexing factor, provided by s. 49 & 50, is based on the percentage change in the CPI for Canada for all items for the 12 month period ending October 31 of the previous year. Effective January 1, 1995, all benefits are Friedland indexed, except 100% pensions, 100% future economic loss, survivors, and all compensation to those receiving the new $200 monthly benefit. **Effective January 1, 1998**, all benefits are modified Friedland indexed, except 100% pensions, 100% future economic loss, and survivors.

Juris-diction	Annual amount	Effective Date	Method of Adjustment
P.E.I.	$36,600	Jan. 1, 2000	Section 47(1). Effective January 1, 1995, the maximum annual earnings shall be equal to the Average Weekly Earnings Industrial Aggregate for all employees in P.E.I. at June 30, 1994, multiplied by 52 as published by Statistics Canada, multiplied by 1.5 and rounded to the nearest $1,000. Section 47 (2). The maximum annual earnings established under subsection (1) shall be adjusted on January 1, 1996 and on January 1 of each year thereafter by the percentage increase in the consumer price index for all items for the 12 month period ending on the June 30 previous as determined by the Board in August of each year on the basis of monthly reports published by Statistics Canada.
Quebec	$50,500	Jan. 1, 2000	Section 117. Each year, the 1985 maximum ($33,000) is multiplied by the ratio between the average of the Industrial Composite figures for each of the 12 months prior to the preceding July 1st and the same average for the 12 months ending July 1, 1984, rounded to the next highest $500 and effective for the new calendar year.
Sask.	$48,000 (for claims post Sept' 85) $45,000 (for claims before Sept' 85	Sept. 1, 1985 Jan. 1, 2000	Requires legislative amendments (Section 38.1). Section 38. Average of earnings of workers injured in the preceding 12 months ending Sept. 30, and the maximum earnings covered for the next calendar year is increased by sufficient increments of $1,000 to the point where less than 10% of those workers' wages would be in excess of the new maximum. (Applies to maximum wage rate only).
Yukon	$60,000	Jan. 1, 2000	Section 101. From 1998 to 2003, the board will increase the max. wage rate by equal amounts each year, plus or minus an adjustment amount. The annual increase is based on a projection. In 2003, the max. wage rate must equal the annual earnings of 90% of workers.

Appendix E

Actuarial Review – Impact of a Change to Open Commutations and Full Indexation

Comments from Conrad Ferguson - Commutation on Demand

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MEMO/
CORRESPONDANCE
INTERNE

Date: January 8, 2002 Code: NSWCB-0001

To/À: Barbara Jones-Gordon

Copy/Copie:

From/De: Conrad Ferguson

Re/Objet: Commutation on Demand

As a follow-up to my memorandum of December 13, 2001, I am pleased to attach comments on the review I have carried out on the issue of commutation on demand.

The document is structured in the same manner as the previous document on improvement in the supplementary benefits and is prepared in point form due to time constraints. As explained for the earlier report, I would be pleased to prepare a more detailed report for the Review Committee should they so desire when the time permits.

The comments made in the Board's report are appropriate to the issue at hand. However, I believe that the financial aspect of this particular request cannot be emphasized enough. The financial risk to the Board in terms of workers attempting to maximize their benefits by requesting commutations when it is most advantageous to them is significant.

I found that the document addressed the mortality anti-selection risk adequately. However, there is another element of risk related to economic cycles which could have an equally detrimental effect on the Board's financial position. This aspect was not covered in the document. I will elaborate on that in the attached notes.

With respect to the financial assessment of the mortality risk, my results are at the upper end of the range quoted by the Board in their document.

The other aspects related to pros and cons have been adequately addressed and I will summarize these issues in my notes.

I trust these comments are of assistance to you. However, please do not hesitate to contact me should you wish to discuss this further.

CF:cn

COMMUTATION ON DEMAND

The Review Committee was asked to enquire about the pros and cons of commutation on demand of permanent benefits and to determine or recommend whether the present approach of the Board should be modified.

Benefit Level

I have shown in the table below, the commuted value for males and females at various ages to illustrate the values.

Illustration of Commuted Values at Various Ages			
Age	*Monthly PIB or CRS Benefit*	*Commuted Value for Male*	*Commuted Value for Female*
30	$250	51,200	53,000
40	$250	47,400	50,300
50	$250	41,700	46,000
60	$250	34,400	39,500
70	$250	25,800	30,600
80	$250	17,700	21,200

- Differences in male and female commuted values are due to the longer life expectancy of females.
- Assumptions used are mortality rates from the GAM-71 table and at 5.5% net discount rate.

Summary of Current Benefit Recipients

	CRS		*Surviving Spouses*	
	Classified	*Self-insured*	*Classified*	*Self-Insured*
Number	6,055	2,992	715	236
Average age	60	66	65	74
Average monthly benefit				
- Total	279	289	942	852
- CRS only	259	286	933	846

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Average monthly benefit				
- Total	279	289	942	852
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Pros of Commutation on Demand

- Flexibility to injured worker to choose the type of benefit he/she wishes to receive.
- For small amounts, reduced administration burden on the Board.
- Closure of relationship between injured worker and Board where no other services are required from the Board by injured worker.

Cons of Commutation on Demand

- Financial impact on Board as a result of timing of payouts due to either perceived favourable market interest rates or request based on health status of injured worker.
- Added administrative burden of providing estimates for injured workers who may wish to consider commutation.
- Since choice is given to the injured worker, arguments could be made that the Board will be required to provide advice or, at very least, educate the injured worker as to the aspects of the decision.
- Possible need of income stream by injured worker at a later date due to changing personal circumstances.
- Impact on intent of minimum income guarantee from Supplementary benefits. (Example: *Worker takes commuted value, then earnings fail below Supplementary threshold. Is the monthly equivalent of CRS considered even though already paid?*)
- I assumed EERB were not part of the request. If they were, there could be added risk of attempting to maximize EERB benefit before actual return to work, get commutation and then return to work with resulting higher EERB costs.
- The payment of a lump sum may cause the recipient to lose the right to receive the Guaranteed Income Supplement and/or be required to pay back a portion of the Old Age Security benefits already received.

Costing of Mortality Risk

- The Board in separate memorandums suggested that the potential cost of the commutation of benefits could range between $53 and $80 million. I assume this was for classified employers only.
- I have carried out my own estimate of the potential maximum costs related to selection against the Board on mortality risk alone.
- The approach used is to assume that the injured worker will make the decision that will maximize the benefit to him or her.

- I assumed that any injured worker expected to pass away in a given year would request commutation in that year and all others would wait until later. Using this approach, I get the following results:

Impact on self-insured account:	$40.0 Million
Impact on classified accounts	$78.0 Million

Mortality rates from GAM-71
5.5% net discount rate

- The totals above are the CRS pension including the Supplementary pension for CRS and PIB portion of the long term disability benefit. EERB pensions were not considered in this costing. If included, the totals would be higher, but the principles and issues would be the same.

- The impact on self insured accounts is the present value impact. Since they pay costs as they occur, the real impact would be increased payouts every time a commutation is requested. Over time the added cost is estimated in present value terms at a maximum of $40.0 million.

- Please note that this shows the maximum potential cost if all injured workers wait until the most advantageous time to ask for a commutation. In practice, this will not happen as some will request commutations beforehand for a variety of reasons. Costs will certainly be less than shown above for the mortality risk alone but will still be very significant.

Costing of Interest Rate Risk

- If the basis used for commutations is the valuation assumptions used to calculate the liabilities for the Board, there may be financial risk depending on current interest rates in the financial markets. In this context, an injured worker could wait to request the commuted value when interest rates are high. Using the commuted values from the previous table and assuming a current market interest rate of 10%, an injured worker could do the simple calculation of multiplying the commuted value by 10% and determine whether it was an adequate replacement for the current benefit level either from CRS or PIB. This is illustrated in the following table.

Illustration of Interest Income from Commuted Values at 10% Interest					
Age	*Monthly PIB or CRS Benefit*	*Commuted Value for Male*	*Commuted Value for Female*	*Monthly Interest Income at 10% Annual Rate*	
				Male	*Female*
30	$250 per month	51,200	53,000	408	423
40	$250 per month	47,400	50,300	378	401
50	$250 per month	41,700	46,000	333	367
60	$250 per month	34,400	39,500	274	315
70	$250 per month	25,800	30,600	206	244
80	$250 per month	17,700	21,200	141	169

- As you can see from the above table, when market interest rates reach 10%, the interest on the commuted value is more than the monthly benefit for all claimants under age 60. This implies that younger workers would very likely demand commuted values at that time.

- When interest rates rise, usually performance of investments on financial markets, whether bonds or equities, is unfavourable. Long term bond investments are affected because the bonds held in the portfolio would be at a rate lower than that available in the market, which affects the price of bonds negatively. Equities are affected because of the economic impact of high interest rates on businesses trading on stock exchanges. As a result, the Commission would be faced with a high demand for commutations at a time when asset values are depressed, which would mean that they would have to trade assets at depressed values to pay commutations for injured workers.

- Assets traded at depressed values do not remain in the portfolio to recover when the market rebounds. As a result, there could be significant financial losses to the Board as a result of economic timing as opposed to mortality timing of commutations.

- In fact, what would likely happen if workers make the right financial decision is that older workers would ask for commutations when their health deteriorates enough, and younger workers would demand commutations when interest rates rise. This would have a double impact since those less likely to ask for commutations for mortality would do so when economic cycles are favourable to them.

- To put it in perspective, if the market rates reached the 10% to 12% range, the interest rate risk would be of the same order of magnitude as the mortality risk.

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- To put it in perspective, if the market rates reached the 10% to 12% range, the interest rate risk would be of the same order of magnitude as the mortality risk.

Other Issues

If commutation on demand is to be considered, then the following factors need to be examined:

1. *Will the basis for the commutation be the long term economic assumptions used by the Board or will the basis be affected by market conditions at the time of the demand?*

2. *Will the basis reflect male and female distinct mortality rates or will there be unisex rates so that the values paid out to males and females are the same?*

3. *Will the mortality basis take into account the current health status of the injured worker?*

Summary

- Financial risk very high if open commutations on demand are allowed.

- Two types of risk
  - Mortality
  - Interest Rate

- Cost could be as high as $40 million for self-insured employers and $78 million for classified employers based on mortality risk only. Interest rate risk of the same order of magnitude – one or other risk will be present but not both for every single case. Combined impact of both risks is less than the sum of the cost for each.

- If added flexibility desired for injured workers without substantially increasing financial risk for the Board, then a restricted commutation on demand could be considered. This could include:

  1. Commutations only at award date or upon reaching a certain age (e.g. 65).

  2. Commutations based on market interest rates but not less than the Board's valuation interest rates.

  3. Recognition of health status of injured worker in commuted value calculation.

Confidence in Costing results

- High confidence in calculation of maximum potential cost for mortality risk.
- Moderate confidence in estimate of interest rate risk.
- Actual cost to Board cannot be precisely determined. It would depend on individual injured worker decisions. However, financial risk is high.

CF:cn

Comments from Conrad Ferguson
- Indexing

WORKERS' COMPENSATION BOARD OF NOVA SCOTIA

MEMO

TO: Leo McKenna

FROM: Sandra Keefe

SUBJECT: Indexing at 100% of CPI

DATE: June 4, 2002

During the course of the statutory review process, we provided the committee with an estimate of the cost associated with indexing benefits at full CPI as opposed to ½ of CPI. This estimate was prepared by Paul Conrad and was verbally communicated to be approximately $129.3 million. The review committee quotes this cost in the March 2002 report (Page 138). The statement contains a reference to the following footnote:

" Memo from WCB dated December 17, 2001. The committee confirmed this is in the correct order of magnitude".

I spoke to Conrad Ferguson with regard to this statement and he has informed me that he provided the opinion concerning the magnitude of this estimate.

Subsequent to the release of this report, Paul Conrad revised his estimate to be based on the 2001 valuation data as opposed to the 2000 data. The revised estimates along with estimates associated with a transitional move towards full indexing are included in the attached spreadsheet.

I trust that this information is suitable for your purposes.

Sandra Keefe, CMA
Manager, Financial & Statistical Analysis

Section 70 – CPI Indexing

The Workers' Compensation Board indexes the benefits of injured workers in an attempt to adjust for increases in cost of living. Over the years, the indexing formula changed. In the mid 70's benefits were indexed by 2 percent for every full 2 percent increase in the Nova Scotia all items Consumer Price Index. If the CPI increase was less than 2 percent, no indexing was applied. The Act and Policies concerning indexing were changed in connection with the implementation of the new Act. The new directive was to suspend indexing for a period of five years and, beginning in 2000, to index based on one-half of the change in the annual average of the Nova Scotia all items Consumer Price Index. The current year marks the third year in which indexing has been applied using the new formula.

As part of the Statutory Review process, the indexing formula was again discussed as an area where improvements could be made. The review committee has recommended that full indexing of benefits (100 percent of CPI) be phased in over a period of time. "The committee considers it short sighted to limit indexing of benefits. Indexing is an earnings loss system assists the injured worker to maintain a current income replacement the keeps abreast of cost of living increases".

During the contemplation of a new Workers' Compensation Act, full indexing was considered as an option. Upon further analysis of the data, full indexing was deemed to be inappropriate. The new earnings loss system compensates work at a rate equal to 75% of their net pay for the first 26 weeks and 85% of net pay thereafter. Net pay is calculated by considering all payroll deductions for the pre-loss of earnings based on the payroll deductions relevant to the earnings year. Once the rate is calculated indexing is applied each January to the rate in pay as of January 1 of the indexing year. Over the past decade, net pay as a percentage of gross has steadily decreased. As a result, workers who have their gross wages indexed at full CPI will take home less than a full CPI increase in their net pay. The difference is greater for workers in higher tax brackets. Injured workers receiving benefits would receive an increase in their take home pay equivalent to full CPI.

It could be argued that workers could negotiate an annual increase in pay that would provide them with the equivalent of the full CPI indexing. While this may be true for some, not all workers could successfully negotiate such an increase. The only way to fully adjust for payroll tax changes and the resulting rate changes would be to apply indexing at the gross earnings level and recaiculate net loss of earnings each based on the payroll deductions in effect in the indexing year.

Amending the Act to apply full indexing to benefits would provide a small benefit increase to large number of injured workers at an estimated cost of 14 – 15% of the liabilities as at the implementation date. Based on 2001 valuation results full indexing will increase the unfunded liability by an estimated $144.42 million and will increase claims costs incurred by 8.1% or $7.5 million annually. Indexing at 60% of CPI would result in a $25.40 million (2.5%) increase in benefits liabilities with a $1.34 million (1.4%) increase in annual claims costs incurred. A gradual increase from 50- 100 % of CPI over a 5 year period would result in and increase of $111.22 million (11.1%) in benefits liabilities and a $4.9 million (5.3%) increase in annual claims costs incurred.

The policies and practices in applying indexing vary across jurisdictions. Most boards in Canada index at or close to 100% of the CPI increase. Some jurisdictions have different indexing formulas for different types of benefits. Full indexing is particularly appropriate for workers with serious injuries that will likely never return to work. In some cases, workers compensation benefits are the only source of income for these families. Indexing at 50% of CPI can have a substantial impact on these families as their ability to meet the costs of everyday living is compromised in periods of economic growth. While many arguments seem to support full indexing, it will be important to arrive at a formula that is fair and consistent while providing an acceptable approximation of the injured workers earnings loss.

Indexing Costs

	Liabilities	Increase	Percent Increase	Incurred Claims	Increase	Percent Increase
Valuation Results 2001	$1,002,978,000			$92,085,000		
Indexing at 100% of CPI	1,147,398,000	$144,420,000	14.4%	99,539,000	$7,454,000	8.1%
Indexing at 60% of CPI	1,028,376,000	25,398,000	2.5%	93,420,000	1,335,000	1.4%
Indexing increased from 50% to 100% of CPI over 5 years	1,114,201,000	111,223,000	11.1%	96,992,000	4,907,000	5.3%

Appendix F

Actuarial Review – Impact of a Change in the Benefit Formula

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KENNETH T. CLARK, FSA ACIA
JOHN CORP, FSA ACIA
PAUL S. DAWSON, FSA ACIA
PAU[illegible]ILLA PENNA, FSA ACIA
PIE[illegible]JOME, FSA ACIA
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VANCOUVER - WINNIPEG
TORONTO - MONTREAL - HALIFAX
BARBADOS

Dear Leo:

Re: Proposed Changes to the Benefit Formula

I am writing further to our recent discussions concerning the impact of a possible change in the benefit formula.

This document is not intended to represent a formal report on the costing of benefit changes. A formal report was neither warranted by the purpose of this analysis, nor practicable within the constraints of time available. The calculations reported herein represent an estimate intended to provide input to discussions concerning the approximate expected effect of certain possible benefit changes; they are not intended for use in a formal actuarial valuation or assessment setting process.

This letter addresses the estimated cost of increasing the percentage in the benefit formula from 75% for the first 26 weeks followed by 85% thereafter. With respect to the first 26 weeks, we have looked at the impact of increasing the 75% to 80%, 85%, and 90%, respectively. We have also estimated the effect of increasing the longer term rate from 85% to 90%.

As you mentioned, there are two expected effects from changes of this sort. The first is the effect on the average benefit, disregarding the impact on volumes. The second is the estimated psychological impact on volumes of time loss claims.

Estimated Cost Due to Increase in Average Benefit

The calculations and costs estimated in respect of the increase in average benefits resulting from the changes under consideration are summarized in Appendix A. The table at the bottom of the appendix shows that the estimated increase in the assessment rate ranges from $0.01 to $0.09 per $100 of assessable payroll in the year

2000 (using 1998 as a proxy), depending on which combination of changes is chosen. Note that this range increases to $0.02 to $0.13 per $100 of assessable payroll by 2040, assuming that assessable payroll lags claim costs incurred increases by 1% per annum.

The 1998 base year claims costs incurred that have been used for our calculations were taken from the December 31, 1998 actuarial valuation report: Appendix B summarizes the affected claims cost incurred numbers.

In our calculations, we have used duration 0 claims paid as a proxy for claims paid in respect of 0 to 26 weeks following the date of injury. Duration 0 represents any claims paid in 1998 in respect of injuries that occurred during 1998. Of course, some of these claims will have been paid in respect of injuries that have occurred more than 26 weeks prior to the date of payment. On the other hand, there will be some duration 1 claim payments in the 1998 data that are actually in respect of 0 to 26 weeks following the date of injury. On the balance, we think that our use of duration 0 as a proxy for the first 26 weeks of claim is a reasonable assumption for the purposes of this analysis, given the time constraints.

Estimated Impact on Claims Volumes

The estimation of the impact on claims volumes is subject to much more judgement than the estimation of the impact on average benefit amounts. However, an analysis of the patterns of time loss claims registered over recent years helps to focus the analysis.

Calendar Year	Compensable Time Loss Claims Registered*
1992	11,920
1993	13,396
1994	13,306
1995	10,515
1996	7,995
1997	7,697

* Per WCB Annual Reports: 1996, 1997

As you can see from the preceeding table, there have been significant drops in the number of time loss claims registered both from 1994 to 1995 and again from 1995 to 1996.

There are several factors contributing to these decreases, some due to benefit changes and others due to environmental changes not directly related to benefit factors. This latter group would consist of at least 4 items. The first of these would be the impact of increased awareness of occupational health and safety measures and programs. It is expected that the increased measures and the publicity surrounding their implementation would have had a downward impact on claims volumes. Similarly, the implementation of the experience rating program- as well as the advanced discussions surrounding the program - would encourage employers to take actions to reduce claims volumes and severity. It was also during this period that the WCB implemented various improvements in its service delivery mechanism, which were further expected to reduce claims. In addition to these factors, there has likely been some reduction in claims registered due to shifts in the industrial sector mix.

In terms of the benefit changes that were expected to reduce claims, there were two key adjustments. One of the adjustments was, of course, the change in the benefit formula from 75% of gross earnings to 75%/85% of net earnings. However, it is the other change that would be expected to play the largest role in reducing the number of claims registered: that is the implementation of the 2/5 waiting period.

The benefit changes, which were implemented over 1995 to 1996, would represent a large share of the reduction in time loss claims registered from 1995 to 1997; however there would have been some residual effect from the other, non-benefit factors as well. Therefore, I think it is safe to assume that the 27% decrease that took place from 1995 to 1997 is the maximum volume impact of benefit changes.

In our estimation of the psychological impact on volumes, we are assuming that the majority of this decrease would be due to the waiting period, so that we would expect approximately a 10% increase in time loss claims registered with improvements to the benefit formula. It is quite possible that this is still a conservative assumption, perhaps overstating the estimated cost. We have further assumed that the percentage increase in costs would be the same regardless of whether the benefit percentage for the first 26 weeks increases to 80%, 85%, or 90%.

The assumed 10% reduction in time loss claims would affect primarily duration 0 TERBs and we have assumed that the impact on longer term TERBs, rehab income, and long-term disability claims will be only 20% of this, or 2%.

The estimated cost that results from these assumptions is:

10% x $8,252,336 - 2% x $7,488,760 - $2,949,838 - $40,686,860)
= $1,875,743.

This impact, which is expressed in 1998 dollars, translates into $0.03 per $100 of assessable payroll in the year 2000, increasing to $0.05 per $100 of assessable payroll in the year 2040.

Note that this impact is in addition to the impact due to increases in average benefit levels.

Uncertainty

There are two primary areas of uncertainty in our calculations. The first is the potential for a small approximation error resulting from the use of duration 0 as a proxy for claims less than or equal to 26 weeks old. The second, and more uncertain area, concerns the degree of judgment applied in estimating the impact on claims volumes.

It is possible that a more detailed analysis would lead to a refinement of the estimates; if this is desired please let me know.

Yours truly,

Douglas W. Taylor, F.C.I.A., F.S.A.

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Appendix A

Estimated Impact on 1998 Claims Costs Incurred (CCI) of Increase in Income Replacement Percentage

Ignoring Impact on Volumes

TERBs ≤ 26 weeks

Each increase of 500 basis points

i.e. from 75% to 80%
or 80% to 85%
or 85% to 90%

will increase CCI by $568.822

Other Affected Benefits

Increase from 85% to 90%

will increase CCI by $3,116,069

Summary of CCI Increase									
Percentage Applied First 26 Weeks	TERBs ≤ 26 Weeks			Others (90%)			Total Increase If Both Changes Are Made		
	$	Rate* 2000	Rate** 2040	$	Rate* 2000	Rate** 2040	$	Rate* 2000	Rate** 2040
80%	$568,322	$0.01	$0.02	$3,116,069	$0.06	$0.09	$3,684,891	$0.07	$0.11
85%	1,137,644	0.02	0.03	3,116,069	0.06	0.09	4,253,713	0.08	0.12
90%	1,706,466	0.03	0.04	3,116,069	0.06	0.09	4,822,535	0.09	0.13

* Per $100 of assessable payroll based on assessable payroll of $5,137 Billion (1998)

** Assuming payroll growth lags CCI growth by 1% per annum

Appendix B

	1998 Claims* Costs Incurred	
TERBs - duration 0**	58,532,336	
- all other durations	7,488,760	
Rehab Income	2,949,838	52,973,177
LTD	40,686,860	
Survivor Pensions	1,847,719	
	61,505,513	

* excludes categories not subject to income replacement formula
** used as a proxy for 0 - 26 weeks following date of injury

Appendix G

Assumptions - Wage Loss Costing Model – Historical Basis for Funding Strategy

Note: The attached letter refers to a blind sample of Revenue Canada Taxation income tax information concerning 1,371 pensions which was the best empirical evidence available at the time to predict the cost of the new system. The blind sample was of all 1991 pensions awarded (1371 claims) and compared pre-accident earnings (1985) to post-accident earnings (1989 –1991). The data was provided to the WCB by Revenue Canada by group only, so individuals were not identified.

March 12, 1997
Direct line: (902) 490-3303

Mr. Leo McKenna, C.F.O.
Workers' Compensation Board
5668 South Street
P.O. Box 1150
Halifax, Nova Scotia
B3J 2Y2

Dear Leo:

Re: "Laundry List" of Key Wage Loss Costing Assumptions

Please find enclosed the "Laundry List" which was requested by you and Jim Houston at a meeting on February 25, 1996.

The current format covers all of the key assumptions and also goes into background details regarding earnings information and assumed LTD awards patterns. However, the high level information remains on one page - the first page of the attachment - which is basically a slightly modified version of one of the overheads I used in my recent presentations to Management. The remaining pages of the attachment provide further details. Still further details would be available at the Board and are perhaps in the Wage Loss Costing "Brick", which was compiled by Marlene Morrison. These further details would pertain to the nuts and bolts calculations regarding Unemployment Insurance and CPP offsets as well as the treatment of seasonal workers.

Please call me if you have any questions.

Yours truly,

Douglas W. Taylor

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enclosure

Wage Loss
Costing Model

Major Assumptions

Old System:

Average Age:	47
Average PMI:	10.6%
Average Pre-Accident Earnings:	$25,000
Gives Average Monthly Benefit of:	$165.63

	Assumed	Actual
Average Annual LTD Volume assumed unchanged except through service improvements	1045*	Too soon

New System (see attached for further details):

EERB:

Average Age (Benefit Weighted):	50	✔
Average Monthly Benefit:	$592.43	$852
% of LTD Cases with Earnings Loss:	56%**	Too soon

PIB:

Average Age:	44	✔
Average PMI:	10.6%	
Average Monthly Benefit:	$39.74	$21
% of All Cases with PIB:	100%	

* See attached run-off assumptions

** Assumed that 3% of these are over 65 and ineligible for EERB.

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Data

The data used in the Wage Loss Model were derived from a blind sample of Revenue Canada Taxation income tax information concerning pensions in 1988. The following is a summary of the data.

Group	Description	Average Age	% of all new LTD cases	Pre-accident earnings	Post-accident earnings	Assumed deeming
1	No employment earnings in the 3-year period following the award	55	18	$22,874	$0	$0
2	Employment earnings in only one or two of the 3-years following the award	45	20	$21,321	$7,406	$4,400
3	Employment earnings all three years following the award but at a reduced level	43	18	$29,675	$19,886	$0
4	Employment earnings at an equal or greater level in all three years following the award	44	44	$23,524	n/a	n/a

It was assumed, based on a review of new awards in 1991, that 3% of all new cases would be in respect of individuals already over age 65.

Other Assumptions

(1) The relative effect on the current and future costs of accidents, occurring in any given calendar year, will be the same as the effect on the awards in the sample which the model utilizes.

(2) Percentage of seasonal workers is assumed to be 20%.

(3) Pre-accident earnings are assumed to decrease by 25% for all cases which are on UIC. This is based on an assumed policy which:

(i) includes UIC as earnings in any given year;
(ii) UIC at level provided under old Act; and
(iii) number of weeks worked, approximately 22.

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(4) The average number of weeks worked by seasonal employees or employees on UIC is assumed to be 22 weeks.

(5) The average disability percentage for CRS awards is assumed to be 10.6%, as derived from the sample.

(6) Assumed that 26% of all wage loss cases will be receiving CPP after the accident and that the Board will only recognize 50% of the CPP as a post-accident earnings reduction since employee paid ½ CPP premium.

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Wage Loss Costing Model

Assumed Run-off of LTD Awards

Duration at which First LTD Payment Made	Number of Expected Awards		
	PIB Only	PIB/EERB	Total
0	19	3	22
1	238	86	324
2	97	139	236
3	38	123	161
4	18	70	88
5	12	45	57
6	9	24	33
7	3	10	13
8	2	7	9
9	4	5	9
10	2	5	7
11	1	2	3
12	2	2	4
13	3	6	9
14	0	7	7
15	3	1	4
16	0	2	2
17	1	2	3
18	1	0	1
19	1	2	3
20+	10	24	34
Total	464	565	1,029

Notes:

1. Duration = Calendar year of payment minus calendar year of accident.

2. PIB Only Awards based on 85% of number of Lump Sum Awards based on 1992 Experience; 85% = 44%/52% where 44% is expected proportion of new LTD awards receiving PIB Only awards and 52% is the historical proportion of new LTD awards receiving lump sums (based on 1992 data).

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Wage Loss Costing Model

Assumed Run-off of LTD Awards

Duration at which First LTD Payment Made	Number of Expected Awards		
	PIB Only	PIB/EERB	Total
0	19	3	22
1	238	86	324
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3	38	123	161
4	18	70	88
5	12	45	57
6	9	24	33
7	3	10	13
8	2	7	9
9	4	5	9
10	2	5	7
11	1	2	3
12	2	2	4
13	3	6	9
14	0	7	7
15	3	1	4
16	0	2	2
17	1	2	3
18	1	0	1
19	1	2	3
20+	10	24	34
Total	464	565	1,029

Notes:

1. Duration = Calendar year of payment minus calendar year of accident.

2. PIB Only Awards based on 85% of number of Lump Sum Awards based on 1992 Experience; 85% = 44%/52% where 44% is expected proportion of new LTD awards receiving PIB Only awards and 52% is the historical proportion of new LTD awards receiving lump sums (based on 1992 data).

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3. PIB/EERB Awards based on 113% of number of new pension awards based on 1992 Experience; 113% = $\frac{97\% \times 56\%}{48\%}$

where: 97% reflects that 3% of new awards are for individuals already over 65 (and hence ineligible for EERB)

56% reflects the expected portion of new LTD claims suffering an earnings loss

48% reflects the historical proportion of new LTD awards receiving periodic pensions (based on 1992 data).

4. The total is less than 1,045, the historical volume based on 1992 data, because of the individuals assumed to be already over age 65.

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